SCIENTIFIC AND RELIGIOUS UNIVERSES OF DISCOURSE

by Bruce B. Wavell

Abstract. The author argues, by analyzing the logic implicit in scientific and religious statements, that these two kinds of statements belong to different universes of discourse. Religious statements are not admissible into scientific discourse and scientific statements are not admissible into religious discourse. This separation of discourse into universes of discourse is based on validity conventions which legislate different kinds of truth criteria for statements in different universes.

The controversies between science and religion have been fueled by the assumption that it makes sense to say that scientific and religious statements are, or are not, compatible with each other. I shall argue in this paper that this assumption involves a gross misunderstanding of the logic of natural language and in particular of the nature of both scientific and religious statements. These classes of statements belong to different spheres or universes of discourse, which are merely specialized extensions of natural language. Consequently, they both conform, in spite of their important differences, to the basic principles of natural logic. One principle is that entry into a universe of discourse is governed by validity criteria, and another is that the same statement may have different truth-criteria in different universes of discourse. Because of these principles scientific statements are invalid in religion and religious statements are invalid in science, and scientific and religious statements can not be either compatible or incompatible with each other. These results apply primarily to what I shall call "faith-religions," of which Christianity, Judaism and Islam are typical examples. The paper closes with a brief discussion of the relevance of universes of discourse to two other types of religion—the "insight-

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religions" (e.g., Buddhism and Hinduism) and the "experience-religions" (e.g., the various forms of mysticism).

One of the main causes of the decline of Christianity, I think it would be generally agreed, has been the rise of science since the seventeenth century. Science's impact on Christianity has been complex, but we can isolate fairly easily two aspects of this impact that are relevant to the theme of this paper. First, many people have assumed that important Christian beliefs are in conflict with scientific views and that the evidence strongly favors science. The obvious example is the conflict between the Genesis account of creation and the scientific theory of evolution. Second, some philosophers have argued that key religious beliefs, such as the belief that God exists, cannot by their very nature be confirmed or disconfirmed by empirical evidence and so are inferior to scientific beliefs, which must be capable of being rendered more or less probable by such evidence to be counted as scientific. The logical positivists went so far as to assert that because religious beliefs are not testable scientifically they are, strictly speaking, nonsense.

How influential such opinions have been in undermining Christian faith is a question for historians of religion to answer, but I think there can be no doubt that this influence has been appreciable. Consequently, there are good practical reasons for examining the assumptions on which these opinions are based. However, my aim in this paper is not a practical one: I have no intention of providing an apologetic for Christianity. I merely wish to argue that the opinions in question are based on misunderstandings of the character of natural logic, not because I am particularly concerned with the practical effects of these misunderstandings but because I am concerned with trying to understand the relations between scientific and religious discourse.

The thesis I wish to present is that the misunderstandings in question result from a failure to realize that scientific and religious statements belong to different universes of discourse and hence that the application of scientific truth-criteria to religious statements and the attempt to show that scientific and religious statements are compatible or incompatible are category mistakes, to use Gilbert Ryle's useful term.[1] This thesis is based on the view that one of the basic principles of the organization of natural language is its division into spheres or universes of discourse. The division is enforced by a number of linguistic and logical conventions.

Those of you who are philosophers will know that the notion of a universe of discourse is not new and that the overwhelming majority of philosophers now reject it. I am resurrecting it here because I am convinced that it is an essential part of the organization of natural

language and that its rejection by philosophers is due in part to their preoccupation with simplistic artificial languages, such as the calculi of mathematical logic, and in part to an attempt to base logic on empiricist or positivist assumptions. If logicians would only follow Ludwig Wittgenstein's advice and *look* at natural language without metaphysical or epistemological biases or prejudices, they would *see* that the division of discourse into universes of discourse is one of its fundamental features.

I said that the notion of a universe of discourse is not a new one. In the latter part of the last century it was in fact a generally accepted part of logical theory. J. N. Keynes, the father of the economist Lord Keynes and a leading authority on traditional logic, made it a cornerstone of his influential book titled "Formal Logic," the first edition of which was published in 1884.[2] Here is an excerpt from this book which will serve to explain the notion of universe of discourse and provide some good examples:

> No general criterion can be laid down for determining what is the universe of discourse in any particular case. It may, however, be said that knowledge as to what is the universe referred to is involved in understanding the meaning of any given proposition; and cases in which there can be any practical doubt are exceptional. Thus, in the propositions *No roses are blue*, *All men are mortal*, *All ruminant animals are cloven-hoofed*, the reference clearly is to the actual physical universe; in *The wrath of the Olympian gods is very terrible* to the universe of Greek mythology; in *Fairies are able to assume different forms* to the universe of folk-lore; in *Two straight lines cannot enclose a space* to the universe of spatial intuitions.[3]

Keynes tied the notion of universes of discourse to the doctrine of existential import, according to which every proposition of the form "All A's are B's" presupposes that there are A's. This produces no disagreement when a proposition like "All men are mortal" is taken as an example, but it does when the example is "All fairies are able to assume different forms" because there are no fairies in the physical universe. To save the doctrine of existential import Keynes had to assume that fairies do exist but only in the universe of discourse of folklore. Consequently, when Aristotelian logic was replaced by the class calculus, which rejects the assumption of existential import, the notion of universe of discourse disappeared from the logic textbooks, except in a very attenuated sense which was tantamount to extinction.

However, the notion was resurrected early in this century by the Austrian philosopher Alexius Meinong in his famous theory of objects. Meinong held that some objects of thought, like chairs and tables, exist in a full-blooded sense, that is, have physical existence, while other objects of thought, such as fairies and Greek gods, have a quasi existence which he called "subsistence." Self-contradictory notions like round-squares neither exist nor subsist. Much of Bertrand

Russell's philosophical work was devoted to eradicating what he called "the Meinongian jungle of subsistent entities" by defining these entities in such a way that their definiens referred only to physically or phenomenally existing entities.[4] His most famous effort in this direction was his theory of descriptions, which enabled him to eliminate the seeming reference to a subsistent entity in the statement "The present King of France is bald" by translating the statement as follows: "There exists exactly one individual who is a present King of France and is bald." Roderick Chisholm points out that, although Russell's theory of descriptions is often thought to constitute a refutation of Meinong's theory of objects, it actually only presupposes that Meinong's theory is false.[5]

The two episodes in the history of the notion of universes discourse that I have just mentioned are fairly typical. Those philosophers who have opposed the notion have done so either because it has not satisfied their desire to make logic into a mathematical calculus, or because, as in the case of Russell, it was incompatible with their empiricist metaphysical and epistemological assumptions. I do not therefore believe that there are any decisive philosophical reasons why I should not propose the principle of the division of natural language into universes of discourse as a solution to the problem of the relation between scientific and religious discourse. On the positive side, a careful study of how natural language actually is organized reveals, I am convinced, that the principle in question *is* an important feature of this organization. In the following section I shall provide some facts that support this conclusion.

Institutional Facts

For the sake of brevity, I propose to adduce these facts by the detailed analysis of a single example—the institution of marriage, not in its present confused and degenerate form but in the form it was ideally intended to have, and often did have in the years preceding the First World War. I am selecting this example because marriage is a legal and, often, a religious institution, and statements about marriage belong, or can belong, to two universes of discourse—namely, legal discourse and religious discourse.

Let us therefore examine the statement "John is married to Mary." We note, first, that from the standpoint of natural language it makes good sense to ask whether or not this statement is *true* and, second, that it makes equally good sense to ask whether or not it is a *fact* that John is married to Mary. A positivist no doubt would object that, since the only genuine facts are physical facts and since marriage is not a physical fact, what is good sense from the standpoint of natural language is not really good sense at all. He would suggest that the use of

the terms "true" and "fact" in connection with marriages is merely a *façon de parler* involving metaphorical or fantastic extensions of sober scientific patterns of discourse.

I believe that this dismissal of natural language is cavalier. Twenty-five years of careful study of the way in which natural language functions has convinced me that it contains a deep natural wisdom, which it has probably acquired from a long process of evolutionary adaptation to the requirements of the human epistemological situation. I do not claim that every feature of natural language embodies this wisdom but its basic concepts and organization do. Among these concepts I include the concepts of truth, fact, and (as we shall soon see) reality. I therefore shall ignore the positivist's objection and proceed with the analysis of my chosen example.

The positivist is, of course, right in pointing out John's being married to Mary is not a physical fact. No amount of peering through microscopes or telescopes, and no laboratory experiments would disclose the fact that John is married to Mary, if this is indeed the case. But this falure does not mean that the marriage is no kind of fact at all. It is, I claim, an *institutional fact*. Setting aside for the present the religious dimension of marriage, it is a fact that is created, and may be annulled, by the institution of the law.

In what sense is an institutional fact a fact? A fact, the dictionary tells us, is "a state of things as they are; reality; actuality" or, as I shall prefer to say, "an existing or real state-of-affairs."[6] Thus, we have two things to explain if we are to understand the nature of institutional facts: the sense in which John's being married to Mary can be said to be a state-of-affairs and the sense in which this state-of-affairs can be said to exist or to be real.

Let us begin with the state-of-affairs. This consists of a complex of senses or concepts, considered in abstraction from any extra-linguistic references and therefore from any ontological status.[7] In the case in question, the state-of-affairs consists of three constituent concepts: a male-individual-person concept represented by the proper noun "John," a female-individual-person concept represented by the proper noun "Mary," and a binary-relation concept represented by the phrase "being married to." These concepts do not have any reference to extra-linguistic entities antecedently to the use of the state-of-affairs by a speaker in making an assertion or by a thinker in making a judgment.

By a "concept" I mean anything that can be represented by "X" in "I am thinking of X" or in "I am speaking of X" minus its ontological status. It is therefore an object of thought or a subject or topic of speech considered in abstraction from ontological status. To see how this abstraction is possible, consider the statement-form "I am think-

ing of X." I can meaningfully say that I am thinking of a chair (physical object), idea (mental object), number (mathematical object), unicorn (mythical object), and so forth. The ontological status of the object I am thinking of does not depend on the fact that I am thinking of it. Consequently, I can abstract this status from the object and leave its sense—which is what I mean by a "concept."

Let us now examine the sense in which the state-of-affairs of John's being married to Mary can be said to be real or actual, that is, to exist. To understand this sense we need to understand what it is for anything *to be real*. Throughout the history of European philosophy philosophers have asked whether reality is material or mental, noumenal or phenomenal, one or many, but they rarely have asked what it is for anything to be real. The former questions presuppose that reality is given and that the problem is to say what thing or things are most basically real; the latter question is concerned instead, with the nature of reality itself. This, I take it, is the point of Martin Heidegger's criticism of traditional metaphysics: it substituted a discussion of the characteristics of beings for a discussion of the nature of Being itself.[8]

Needless to say, to deal adequately with this topic would require much more time than I can devote to it here. Fortunately, we need only discuss a part of it—namely, what it is *to take something to be real* which, the dictionary tells us, is *to believe in something*. (To take something to be true, the dictionary says, is to believe that something is the case.) A simple example will be helpful here. Little Johnnie, we will suppose, has a concept of Santa Claus as a man who wears a red tunic, has a long white beard, lives at the North Pole, and makes an annual journey from there to give presents to children on Christmas Eve. By saying that Johnnie has a concept of Santa Claus I mean not only that he has the foregoing ideas in his mind but also that for him Santa Claus is an object of thought that is characterized in the ways I have mentioned, irrespective of whether or not he takes this object of thought to be real. Let us further assume that Johnnie believes in Santa Claus. As Johnnie takes Santa Claus to be real he will become increasingly excited as Christmas Eve approaches, try to stay awake so that he can hear the bells of Santa's sleigh, perhaps look up the chimney from time to time, and so on. If asked about Santa Claus he will use the reality-mode of speaking, saying such things as: "I love Santa Claus. I think he is a kind man. He must get very tired visiting all the houses."

What is the difference between taking Santa Claus to be real and not taking him to be real? A child who does not take Santa Claus to be real may have just the same concepts concerning Santa Claus as one who does take him to be real. The difference is that for the child who takes Santa Claus to be real these concepts *regulate* his thoughts,

words, deeds, and feelings in a different way than they do for the child who does not take Santa Claus to be real. To take a concept to be real is thus to become set to "behave" in thought, word, deed, and feeling in accordance with a general mode or pattern of behavior which is "realistic."

What is realistic behavior? We can obtain a clue to the answer to this question from the following dictionary definition of the word "objective": "Being, or regarded as being, independent of the mind; real; actual." For a subject to take an object of thought (concept) to be real is thus to take it to be independent of his or her desires, wishes, hopes, intentions, thoughts, fantasies, and so forth, and so to become set to think, speak, act, and feel in ways appropriate to this independence.

The important thing to note about this definition is that it makes reality broader than physical reality, for it allows things other than physical facts to be taken to be real. This has an important implication for the example of John's marriage to Mary. To say that John's being married to Mary is a fact, assuming that it is a fact, is, as we have seen, to say that it is a real or actual state-of-affairs: it is a state-of-affairs that is independent of everyone's desires, hopes, intentions, etcetera, with regard to it. This makes clear what is meant by saying that John's marriage to Mary is an institutional fact. The law has an instutition—marriage—whereby, when a man and woman are joined together in matrimony, their relationship as defined by law is to be regarded by everyone as inviolate in much the same way that facts of nature are inviolate. Other persons should no more try to tamper with or alter the relationship, for example by having an affair with one of the partners, than they would try to walk through a wall or jump fifty feet into the air.

Since there are legal facts, and facts are real states-of-affairs, there is a legal reality which is broader than physical reality. Discourse which presupposes this reality is thus distinct from physical discourse which presupposes physical reality, even though the two forms of discourse are not totally unrelated, as we shall shortly see. This completes my argument that there are at least two universes of discourse, the universe of physical discourse and the universe of legal discourse. I will defer discussion of the universe of religious discourse until the end of this section.

Before we leave the example of John's marriage to Mary I will use it to throw some light on the concept of truth and to introduce a concept that is of the greatest importance for understanding universes of discourse—the concept of validity.

The dictionary defines "true" as follows: "In accordance with fact; that agrees with reality; not false." Thus, the statement that John is married to Mary is true if and only if it is a fact that John is married to

Mary and, hence, if and only if the state-of-affairs of John's being married to Mary is real. This equivalence, although correct, is not very enlightening because it does not provide a way of determining whether or not the statement in question is true.

Upholders of the correspondence theory of truth assume that, because "true" means "agrees with reality," the criterion for determining whether a statement is true is to compare it with reality to see whether or not the proposition asserted in the statement matches the facts. In the case of our example they would say that "John is married to Mary" is true if and only if the constituents of the statement (strictly, the proposition) "correspond" in a one-to-one manner to the constituents of reality, that is, if and only if there is a particular person who is referred to by the name "John," another person who is referred to by the name "Mary," and these persons are related in reality by a relation that corresponds to the term "married." However, this theory of truth merely tells us, more explicitly, what is *meant* by calling the statement in question "true"; it fails to provide us with a *usable* criterion for determining whether it is true.

How do we actually determine whether John is legally married to Mary? The answer is obvious: we ask them for their marriage certificate, and if we have any doubts about its validity we engage a lawyer to determine whether it is valid. If the certificate is in order then we are justified in concluding that they are married. In short, the existence of a valid marriage certificate is the proper *truth-criterion* for the statement "John is married to Mary." There is no way of comparing the statement with reality in the manner required by the correspondence theory of truth because the reality of John's marriage to Mary is not given to us for inspection in the way the theory suggests. Adherence to the correspondence theory of truth has been one of the main factors, I believe, for the failure to recognize that discourse is divided into universes of discourse.

Another factor that has been responsible for this failure is, I believe, the fact that logicians have not realized that every assertion is subject not only to truth-criteria but also to *validity-criteria*. The speech-act of making a statement is a very complex affair which involves the making of many subsidiary acts of a syntactic, semantic, and referential kind.[9] The truth-criteria for the statement cannot be applied to it unless all these subsidiary acts have been correctly carried out so that the statement is completely in order. To say that a statement (act of stating, strictly) is valid is to say that it is admissible into discourse. The criterion of validity is that the statement-act be completely in order, which means that all of its subsidiary acts be properly carried out.

To illustrate, if in the statement "John is married to Mary" the

referent of the name "John" cannot be determined, then the statement is invalid. As a result of this it would not be possible to determine whether the statement is true. Thus, validity criteria are more basic than truth-criteria: a statement must be valid before we can determine whether or not it is true. Incidentally, this disposes of Russell's example, "The present King of France is bald"; since the definite description "The present King of France" purports to refer to a particular individual but fails to do so, the statement is simply invalid, and the question of its truth or falsity does not arise. Hence, Russell's translation of the statement into a false statement is a misrepresentation.

The relevance of validity-criteria to universes of discourse is that for a statement to be validly made it must be made on the basis of a valid truth-criterion. The statement "John is married to Mary" is valid only if it is made on the basis of a valid marriage certificate; although we do often accept indirect evidence such as the say-so of the married couple, it would not be valid if it were made on the basis, say, of a pronouncement of marriage by the local bartender (unless he is authorized to marry people). Statements in different universes of discourse have their appropriate kinds of truth-criteria, so that a statement in one universe of discourse that is made on the basis of a truth-criterion applicable only to statements of a different universe of discourse would be invalid. Validity-criteria thus serve to identify and separate universes of discourse. This fact enables us to distinguish between scientific validity, legal validity, religious validity, mathematical validity, and so on for all of the different universes of discourse. A statement that is valid in one universe of discourse may be invalid in another: "John is married to Mary" is legally valid but scientifically invalid.

An interesting consequence of this is that the logical positivists were wrong to say that religious statements are meaningless because they cannot in principle be confirmed or disconfirmed on the basis of sensory evidence. They could have said, quite correctly, that religious statements are scientifically invalid, but then, of course, philosophers of religion could have replied that scientific statements are religiously invalid.

In discussing the example of John's marriage to Mary I have so far treated marriage as a secular, legal institution. I will close this section by ignoring its secular aspects and discussing it briefly as a purely religious institution. It is obvious that almost everything I have said about the example still applies if we substitute the word "religious" for the word "legal." That John is married to Mary, if this is indeed the case, is a religious fact if they were married in a valid religious ceremony. This implies that the state-of-affairs of John's being married to

Mary is religiously real and hence that there is a religious reality. Moreover, the statement "John is married to Mary" is true if and only if a religiously authorized rabbi, priest, or minister has united them in a religiously valid ceremony of marriage. It is clear from this that marriage, regarded from the standpoint of religion, is an institutional fact.

These claims are supported by the following. In Christianity the basic facts are created by God. In a Christian marriage ceremony the creation of the fact of marriage is also God's doing, with the assistance of his representatives, as we see from the words that are pronounced in the marriage ceremonies of many denominations after the marriage bond is tied: "Whom God hath joined together let no man put asunder." The implication clearly is that the bond between the newly married man and woman must now be regarded as a fact, one which should be regarded as being no less inviolate than a fact of nature.

Although, for simplicity, I have confined the discussion to a single example, it is not difficult to see that what I have said about this example can be extended to legal and religious discourse generally. These classes of statements constitute distinct universes of discourse, entry into which is regulated by validity criteria. It may not yet be obvious, however, that science constitutes another universe of discourse that is no more fundamental, metaphysically or epistemologically, than the other universes of discourse. I shall therefore devote the next section to a brief discussion of this point.

Scientific Discourse

It will be recalled that Meinong distinguished between existent and subsistent entities. While chairs and tables exist, legal contracts, religious covenants, mathematical concepts, and Greek gods merely subsist; they have, as it were, a second-class ontological status. I propose in this section to give some reasons for thinking that this view involves invidious metaphysical discrimination based on scientistic prejudice.

It is a not uncommon occurrence for scientists to assert a certain proposition and then, years later, on the basis of further evidence, to deny it. A historical example is provided by the proposition that the earth is the center of the solar system. Although this proposition and the one that the sun is the center of the solar system are, if we ignore the refinements of relativity theory, logically incompatible, it would be a mistake to accuse scientists of being inconsistent because Ptolemy asserted the first proposition and Galileo asserted the second. Assertions of semantically inconsistent propositions may be pragmatically consistent provided they are made at different times and provided the evidence available at the times they are made justifies making them. The mistake in question is mentioned in books on informal logic and is often referred to as the *fallacy of false charge of inconsistency*.

Now, it is instructive to note that this situation could give rise to two opposite and conflicting philosophical views which I will call *scientific absolutism* and *scientific relativism*. I say "could give rise" because I am not aware that anyone has actually put forward either view.[10] The scientific absolutist could argue as follows: either it is a fact that the earth is the center of the solar system or it is not; since the evidence is in favor of the latter alternative we are justified in asserting that it corresponds to the facts. The scientific relativist, on the other hand, could point out that it is at least conceivable—if, once again, we ignore the complications that would arise if we took the theory of relativity into account—that the scientist could reverse his position at some future date based on further evidence. Consequently, the relativist could urge, all that the scientist is entitled to claim is that the proposition about the earth being at the center of the solar system is false (or true) *relative to a particular body of evidence* and that some bodies of evidence are better than others. He could conclude that scientific statements are not absolutely true or false, and even their truth or falsity relative to evidence is based—since "better" is a value term—on a value judgment.[11] However, the absolutist could reply that, as all scientific evidence is based on sensory experience, this supposed relativity of scientific truth to evidence is contrary to the scientific use of the word "true" and in any case, it undermines the objective character of science.

I will break off their dispute at this point because I wish to show it is caused by a misunderstanding of the way scientific discourse functions. The scientific relativist is right in his observation that scientific propositions are asserted, always and only, on the basis of evidence that is, at bottom, experiential in nature. They are never asserted on the basis of a comparison with reality, because reality is not a datum with which propositions can be compared. But it does not follow that, in asserting a proposition, this dependence on evidence is a part of what is asserted; rather it is a *presupposition* of the act of assertion.

In the preceding section I said every speech act requires the performance of subsidiary acts and a speech act is valid if and only if all of these subsidiary acts are correctly performed. We now can express this feature of the organization of natural language in terms of what is asserted instead of in terms of the act of asserting. Everything that is stated in speech (whether it is an assertion, a question, or a command) is made on the basis of syntactical, semantic, referential, and other presuppositions.[12] Some of these presuppositions determine to which universe of discourse the statement belongs, and among these are presuppositions as to the appropriate kinds of evidence needed to justify assertions in the different universes of discourse.

In this alternative terminology, we can say a statement (what is stated) is valid if and only if all of its presuppositions are satisfied. We

can continue to use "valid" to mean "admissible into discourse," and we can also continue to distinguish between the various kinds of validity. For example, we can say the assertion "Circe turned many men into swine" is valid in the universe of discourse of Greek mythology but invalid in scientific discourse. Since the truth or falsity of an invalid scientific assertion does not arise—because the assertion is not admitted into scientific discourse—it would be invalid to assert *scientifically* that the assertion "Circe turned many men into swine" is false. On the other hand, because the assertion is valid in Greek mythology, it would be valid to assert that it is true in the context of a discussion on Greek mythology on the basis of a perusal of Homer's *Odyssey*.

To return to the discussion of scientific absolutism and relativism, one of the presuppositions of a scientific assertion and hence one of its validity criteria is that it be made on the basis of all the relevant experiential evidence that is available at the time it is made. An example of a scientifically invalid assertion is an *ad hoc* explanatory hypothesis. This is rejected by scientists as being invalid (although they do not use the term "invalid" in doing so) because there is no evidence for it other than the facts it is put forward to explain, which do not count. Another scientifically invalid assertion would be an assertion *now* that the sun is at the center of the solar system on the basis of the evidence avilable to Ptolemy.

Science's relegation to a presupposition of the general requirement that scientific assertions be based on evidence, and its use of a validity criterion to exclude certain kinds of assertions from scientific discourse conform to the organizational principles of natural language, which we have already noted in discussing legal and religious discourse. They have the following important implications. First, scientific assertions can be made *unconditionally*, that is, without having to be made relative to sense experience, since a presupposition is not an explicit condition and cannot be translated into one.[13] Second, although two scientific propositions may be semantically inconsistent, assertions of these propositions may nevertheless be pragmatically consistent provided they are made at different times and on the evidence available at the times they are made. This is because semantic inconsistency does not automatically imply pragmatic inconsistency: a change in the truth criterion for a statement may lead one legitimately to assert what one had previously denied, or vice versa.

This resolves the dispute between the scientific absolutist and relativist, and in doing so shows that scientific discourse conforms to the basic patterns of organization of other forms of discourse; it is not superior to legal and religious discourse in these respects. It might be objected that, whereas in legal and religious discourse there are institutional and therefore man-made ways of creating and annulling

facts, that is not true of scientific discourse; the facts of science are in this respect, it would seem to follow, more factual. The issue is not as simple as this objection suggests. Scientific facts are relative not only to evidence, and therefore to experience, but also to theory. Scientific discourse *is* superior to legal and religious discourse as a way of explaining and predicting phenomena, and this is not surprising because it has been shaped throughout the history of science to serve this purpose. But legal and religious discourse are superior to scientific discourse as ways of achieving *their* distinctive purposes. There is really no competition between different universes of discourse because each universe of discourse has been shaped to achieve its own purposes.

Religious Discourse

I have provided some evidence in the preceding sections for thinking both that science, the law, and religion employ distinct universes of discourse and that the principles which make this division of discourse possible are parts of the fundamental organization of natural language. In this section I want to introduce an important qualification to my thesis: what I have said applies only to what I shall call "faith-religions."

Modifying Paul Tillich's definition of religion slightly, I shall assume religion is a deep concern with certain fundamental human problems such as how one should live one's life, the so-called meaning of life, death, and the existence of the universe. If one reviews the world's major religions one discovers, I think, they can be divided into three main classes according to their primary approach to these fundamental problems.[14] The *faith-religions* (the major examples of which are Christianity, Judaism, and Islam) deal with these problems by enlarging the conceptual apparatus of ordinary language to create a distinctively religious universe of discourse having its own religious facts, reality, and truth. This universe of discourse is fundamentally a *supernatural* one since its basic presupposition is the existence of God, who is the creator, sustainer, and ultimate meaning of the universe.

I have called Christianity, Judaism, and Islam "faith-religions" rather than "belief-religions" because the use of the word "belief" in this connection would be misleading. Religious faith is the acceptance of the validity of a whole religious universe of discourse; belief is merely the taking of something to be real or true within a universe of discourse, given that the validity of the universe of discourse is already accepted.

The second class of religions are what I shall call *insight-religions*, the main examples of which are Hinduism and Buddhism. These do not deal with the fundamental human problems by developing a universe

of discourse having its own distinctive modes of reality, fact, and truth. Rather, they try to penetrate to the depths of the existing universes of discourse, usually by means of meditation. In the case of Buddhism this penetration leads to a form of insight that Buddhists call Enlightenment. Of course, both Hinduism and Buddhism have their technical religious language but this language is merely interpretive: it does not involve any ontological innovations.[15]

In my view the deepest religious insights to be found in the insight-religions have been provided by the three main schools of Mahayana Buddhism. The Madhyamika (Middle Way) school, whose principal thinker was Nagarjuna (second century A.D.), took the Prajnaparamita group of sutras as its basis and gave us the profound concept of Sunyata (Emptiness). The Vijnanavada (Yogacara) school, of which the main thinkers were Asanga and his brother Vasubhandu, basing itself on the Lankavatara Sutra, gave us the concept of Alayavijnana (Universal Mind). Finally, the Hwa Yen school in China, whose leaders were Tu Shun (died 640 A.D.) and Fa Tsang (died 702 A.D.), elaborated the teachings of the Avatamsaka Sutra and gave us the concepts of Totality and Round Reasoning.

The concepts of Emptiness and Universal Mind are not particularly relevant to my theme, but the concepts of Totality and Round Reasoning are, especially the latter. The leaders of the Hwa Yen school anticipated the notion of a universe of discourse, which they called a "realm," and they held that all realms are organically related to each other in a discursive Totality. Moreover, they held that the principles of logic hold within each realm but not across realms; the same statement can be affirmed in one realm and denied in another. On the basis of this doctrine they invented a new form of religious dialectic called Round Reasoning. Here is an excerpt from G. C. C. Chang's book on Hwa Yen Buddhism which explains the point:

> a principle or order is valid and effective only in a specific realm, beyond which it no longer applies. What should be emphatically stressed here is that neither Prajnaparamita nor Hwa Yen has the slightest intention of sabotaging any order in any realm. In fact, they uphold all orders by allocating their validity to respective dimensions in an interpenetrating and nonobstructive manner. The inviolable truth of the Law of Identity on the conventional level is firmly held by all Buddhist schools. When a particular realm is specified and defined no conflicting or contradictory principles are allowed therein.[16]

The third class of religions are the *experience-religions*, examples of which are the various forms of mysticism. I call them "experience-religions" because they approach the fundamental human problems by bringing to bear on these problems certain extraordinary experiences which they take to be revelatory. Like the insight-religions they do not develop a distinctive universe of discourse but, unlike them, they interpret their special experiences by employing the conceptual

apparatus of one of the other classes of religion. Thus, the Christian mystics, such as Meister Eckhart, interpreted their mystical experiences in terms of Christian concepts, the Sufists employed Islamic concepts, and the adepts of Raja Yoga, Hindu concepts. Zen Buddhism is an interesting case because it is both an insight-religion and an experience-religion. On the one hand it concentrates on realizing, through meditation, the insights that were expressed in words by the schools of Mahayana Buddhism I mentioned earlier, and, on the other, it aims at experiencing absolute samadhi, positive samadhi (i.e., satori or kensho), and other mystical states.

Thus, the thesis that I have presented in this paper—namely, that science and religion belong to two different universes of discourse—really only applies to faith-religions. However, it is clear from what I have just said about the other classes of religion that they do not invalidate the thesis. On the contrary, I have shown that it is in conformity with an important Buddhist religious insight.

Conclusion

I began this paper by mentioning the conflicts that have occurred throughout recent Western history between science and religion. These conflicts, I have suggested, are based on a failure to understand that science and religion belong to different universes of discourse and therefore cannot come into direct logical conflict with each other.

I realize that some *Zygon* readers may not be very happy with this thesis because they would like to see science and religion "reconciled and supportive of each other" in a single universe of discourse. It has not been my intention either to further or to undermine efforts to construct a scientific religion—or religious science. My aim has been purely descriptive: I have merely tried to show, on the basis of linguistic evidence, that science and religion do now belong, and have belonged in the past, to two different universes of discourse. The only implication of this thesis for the unification of science and religion is that those who desire this unification must take the discursive separation of science and religion into account.

Notes

1. Gilbert Ryle, *The Concept of Mind* (New York: Barnes & Noble, 1949), pp. 16, 33, 77-79, 94, 152, 168, 206.

2. J. N. Keynes, *Studies and Exercises in Formal Logic*, 1st ed. (London: Macmillan and Co., 1884), pp. 29-30, 75-76, 210-13, 226n. 234-35.

3. Ibid., p. 213.

4. This was one of the main purposes of Russell and Whitehead's *Principia Mathematica*. For a more readable account see the article on "Existence" in *The Encyclopedia of Philosophy*, ed. Paul Edwards (New York: Macmillan & Free Press, 1967), 3:141.

5. Roderick M. Chisholm, "Alexius Meinong," *The Encyclopedia of Philosophy*, ed. Paul Edwards (New York: Macmillan & Free Press, 1967), 5:261-63.

6. *Webster's New World Dictionary*, ed. D. B. Guralnik (New York: Simon & Schuster, 1980).

7. I am using the term "ontological status" to cover existence (whether legal, moral, or religious), subsistence, and nonexistence.

8. See Martin Heidegger, *An Introduction to Metaphysics*, trans. Ralph Manheim (New Haven, Conn.: Yale University Press, 1959), pp. 75-92. The distinction between "Being" and "beings" the translator of this book renders as the distinction between "being" and "essents."

9. By "syntactics" I mean the study of the signalling code of a language, "semantics" is the study of the meanings that are conventionally assigned to the code, and "pragmatics" is the study of the conventional uses that are made of the code structures and their assigned meanings.

10. These views are analogous to ethical absolutism and ethical relativism, but it would be irrelevant here to enlarge on the analogy.

11. The place of values in science is discussed in Bruce B. Wavell, "The Rationality of Values," *Zygon* 15 (March 1980):43-56.

12. I exclude reference from semantics and include it in pragmatics for reasons that need not concern us here.

13. This holds both in mathematics and in mathematical logic. For example, to specify the ranges of the variables of a mathematical system—which makes the specification a presupposition—prior to laying down the axioms is not precisely equivalent to giving the variables unrestricted ranges and then introducing the required restrictions by conditionalizing the axioms. Again, in ordinary language "If p then q" normally means "q on the presupposition that p." The truth-functional representation of the conditional does not, as is well known, capture this normal sense.

14. I do not wish to deny that each class of religion employs all three of the approaches I shall describe, but each has a predominant approach.

15. An obvious exception here is the Pure Land school, which does seem to involve ontological innovations.

16. G. C. C. Chang, *The Buddhist Theory of Totality* (University Park and London: Pennsylvania State University Press, 1971), p. 134.