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The Existence of God in Zubirian Theology[1]

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Abstract

Proofs of the existence of God have been a mainstay of Western theology for many centuries, and can be traced back to St. Augustine or earlier. New proofs continue to be offered. The proofs can be divided into five major classifications, and analyzed with respect to their premises and their validity. In this article that task is accomplished in light of Zubiri's philosophy and contemporary knowledge, especially scientific knowledge. Zubiri's approach to proofs and theological knowledge recognizes that rational proofs are not our first contact with Diety or the transcendent, just as rational knowledge is not our first or primary contact with reality. As a result, the analysis done here reveals serious problems with many of the proofs, especially with respect to their starting point, and indicates more effective ways to address the question and more realistic expectations about the power of these proofs to convince contemporary audiences.

Resumen

Pruebas de la existencia de Dios han sido un pilar de la teología occidental durante muchos siglos, y se remonta a San Agustín o antes. Nuevas pruebas continuarán ofreciéndose. Las pruebas se pueden dividir en cinco clasificaciones principales, y se analizaron con respecto a sus premisas y su validez. En este artículo se lleva a cabo esa tarea a la luz de la filosofía de Zubiri y el saber contemporáneo, especialmente el saber científico. El enfoque de Zubiri en torno a las pruebas y el saber teológico reconoce que las pruebas racionales no son nuestro primer contacto con la deidad o lo trascendente, del mismo modo que lo racional no es nuestro primer contacto con la realidad ni el primario. Como resultado, el análisis hecho aquí revela problemas graves con muchas de las pruebas, sobre todo con respecto a su punto de partida, e indica formas más eficaces de abordar la cuestión junto con expectativas más realistas sobre el poder de estas pruebas para convencer a las audiencias contemporáneas.

Introduction

Since theology is about God, theological works often begin with "proofs" or demonstrations of God's existence. This is reasonable, since a solid ground for both faith and theology is important. But the idea of "proving" God's existence using a rational demonstration did not arise until the marriage of Judaism and Greek philosophy was consummated by early Christianity. That marriage entailed the need to understand at least some aspects of religion in a rational way, and to show that Christianity (and later Islam) was not at variance with rational knowledge and could be integrated with it. This enormous, difficult task was begun in the second and third centuries and was the source of much fruitful understanding of theological issues; St. Augustine and the Fathers of the Church all drew heavily on classical thought, especially Platonism. But this task is never really complete; it must be periodically redone because of the

march of history and the growth of human knowledge, and so notions of proving God's existence also evolve. From early efforts at integration of faith and reason first arose the idea of a demonstration of the existence of God, though of a somewhat informal nature, as we see in St. Augustine. Later the idea of a rigorous demonstration developed, first among Islamic philosophers and theologians, and subsequently among Christians in Western Europe, culminating in St. Thomas' famous "Five Ways". Most of the major types of proofs still used were developed by the year 1300. In this article we shall consider the major proofs in light of Zubiri's philosophy, and then examine his approach to the question.

Background

The idea of proving God's existence would have made no sense to either the Old Testament Hebrews or the polytheistic peoples of the ancient world. Indeed, for them God (or gods) was simply a fact of life, just as much as (and perhaps because of) the religious rituals pervasive in those cultures. It was of little interest to the Greek fathers and Eastern theologians, whose focus was on other pressing issues, such as the Christological controversies. In general, Eastern theological thought tends to stress the *deification* of man made possible by Christ's redemptive sacrifice; St. Athanasius (c. 300-373) famously said that Christ "was made man so that we might be made God."[2]. On the other hand Western thought has concentrated more on man's *alienation* from God and the way that Christ's sacrifice heals this alienation. Alienation implies separation and distance, and thus the West was more inclined to look for "proofs" of that from which we are separated.

At the time of Augustine (fourth century), Aquinas (13th century), and even Suárez (16th century), belief in God (or gods) was the norm, so for them proving the existence of God was more about completing a structural framework for theology than about actually converting anyone. Indeed, one common "proof" was the so-called "argument from universal consent", which claimed that essentially everybody believed in God, so the idea of God had to have been placed in everyone's mind by God Himself. St. John Damascene remarked, "the knowledge of God is naturally implanted in all."[3] By the 18th century this universal belief was no longer true, and it is certainly not true in our day. Few people have or acquire faith through rational proofs, and fewer still shed their belief on account of any critique of such proofs. Even in the case of those who concede that the proofs yield some type of conclusion, it is unclear that the thing demonstrated is identifiable with "God" in any traditional sense—no one prays to an Unmoved Mover, as the saying goes. Moreover, the general loss of faith in the world today—at least the industrialized world—suggests that these proofs may be deficient in some way, at least with respect to establishing a basis for solid religious faith. This situation, as well as the importance traditionally ascribed to such proofs, dictate that we must examine not only the proofs themselves but the whole idea of proving God's existence, to understand how the proofs really work, what they show or purport to show, whether their might be some basic problem lurking at the core of some of them, what their real purpose is, and whether there is a better way to confront the problem of God's existence. Let us note at the outset that by "proof" or "demonstration" we refer to some type of logical inference, based on premises assumed to be widely or universally held. We do not refer to cases where someone is converted through the example of someone else, or through some interior conversion experience. Such experiences can be very powerful—far more powerful in some cases than any type of intellectual demonstration—but they are not the subject of this chapter. So considering only rational demonstrations, we are concerned with two things: the nature of proofs of God's existence, and what function and value these proofs ultimately have. Here we shall not consider every proof offered for God's existence—that would be the

subject of a rather long book in itself; rather, we shall concentrate on the proofs and arguments that are the most important and influential.

It is important to realize at the outset of this discussion that *no proof for the existence of God can be constructed without a philosophical underpinning or framework, nor can any criticism of a proof be made without such a framework*. There is no exception to this rule. The framework often goes unnoticed; and because philosophical commitments are very deep and very far below the surface, they can be difficult to identify and grasp. But such commitments ground one's beliefs about what classes of things are considered as real, what phenomena can be accepted as genuine, how we can know things, and what are the limits to our knowledge. And make no mistake: these are *philosophical* commitments (or "beliefs" or "convictions" or whatever one chooses to call them); they are not scientific theories or facts. Science itself is ultimately based on such commitments, though the progress of science can influence them. Obviously, the certainty, value and impact of any proof cannot be greater than the certainty of the philosophical framework upon which it is based.

Division of Proofs

The unwavering belief in Western thought since the time of the Greeks has been that it is *reason* or *rational thought* that is our primary access to reality. This immediately suggests the idea of *rational proofs* for God's existence, and such proofs have indeed been the mainstay of Western theology for the better part of a millennium. Of course, most of these traditional proofs have been analyzed and criticized many times over the last few hundred years, notably by Hume, Kant, and others. We shall consider Kant's critique in due course. For now, let us observe that proofs for the existence of God can be divided into five main categories:

(1) *Conceptual*. These proofs utilize only our concepts and do not refer to the world. The best-known example is the *ontological argument*, first propounded by St. Anselm (c. 1033-1109) and later adopted by Descartes, Leibniz, Hegel, and more recently, Gödel. St. Augustine's proof (somewhat informal) based on necessary and immutable truths is another example, as is Scotus' proof in *De Primo Principio*, based on the notions of possible and actual.

(2) *Cosmological*. These proofs rely on some fact about the cosmos, i.e., the world (κόσμος = "world" in Greek). They could also be called "fact based", but "cosmological" is the accepted term. They encompass St. Thomas' "Five Ways", Scotus' argument *a simultaneo*, arguments based on design, Avicenna's argument from contingency and necessity, and many others.

(3) *Morality-based*. These proofs rely on some aspect of morality for their basis. Kant utilized this method.

(4) *Experiential*. These proofs rely on some aspect of our direct experience of reality. This is Zubiri's preferred approach.

(5) *Inference to best explanation*. These proofs do not claim certainty, but argue that the existence of some higher power is the best explanation for a group of phenomena.

By far the majority of proofs offered to date have fallen into the second category, the Cosmological proofs. The categories of proof are quite different with respect to assumptions, method, goal, and result. Hence, with regard to each proof, several key questions need to be asked:

1. What *assumptions* does the proof make? In other words, what is the *starting point* of the proof?
2. What is the *basis* for these assumptions?
3. What type of *metaphysics* is used for the proof? Observe that it is impossible to have any type of proof without some type of philosophical framework.
4. What *type of argument* is used in the proof? This can be deduction, induc-

tion, or something else.

5. What is the *degree of certainty* attained or sought?
6. What is the *goal* of the proof? That is, what, precisely, are we trying to demonstrate? As we shall see, this is an extremely important question, the answer to which is not so straightforward as it may seem.
7. What is the *notion of God* that emerges from the proof? This can be quite diverse, including "first cause", "unmoved mover", "that greater than which nothing can be thought".
8. Who are the *proponents* of the proof?
9. Who is the *audience* for the proof?
10. How *successful* has the proof been?
11. What *criticisms* are leveled against the proof? What validity do they have?

Some of these questions are discussed in the text, and some are left to the reader to ponder.

Conceptual or A Priori *Proofs*

These proofs rest on concepts and intuition alone; they make only very indirect reference to things of the world. As such, they are extremely interesting because they involve key issues in our mental interaction with the world. Specifically, they touch on the question of just what logic and reasoning alone can tell us about reality, and *the extent to which reality must be in agreement with the way we are constrained to think about it*. This is a difficult problem and in many respects is one of the principle themes of modern philosophy, beginning with Descartes. Attempting to answer it led Kant to his now-famous "Copernican Revolution" in philosophy. To set the stage, let us examine some simple examples. Take the syllogism "All men are mortal, Socrates is a man, therefore Socrates is mortal", or the mathematical computation, "Two sticks of wood plus three sticks of wood equal 5 sticks of wood". In both cases we have used an abstract form of reasoning (logic or arithmetic) in conjunction with some statements (truths) about the world to arrive at a new truth about the world that, given the truth of the original statements, we accept as certain. Why does this work, and what are its limits? At the very least, it is clear that our method works provided that the statements about the world are verifiable and of ultimately finite scope (the number of men is finite, not infinite). When we start dealing with things that are infinite, for example, the method breaks down. For example, an infinite number of sticks plus an infinite number of sticks equals an infinite number of sticks (not two). When we try to think about things that are unlimited in some way, our reasoning methods likewise may cease to be reliable. The reader should bear this in mind when considering any conceptual proof.

We begin with St. Augustine, whose entire theology is based on the attitude of the soul toward God, and so places little stock in formalistic systems. Augustine's somewhat informal proof of the existence of God based on *necessary and immutable truths* confirms this. Augustine starts from the fact that the mind apprehends necessary and changeless truths, which are universal in the sense that "…thou canst not call [them] thine, or mine, or any man's, but which [are] present to all and [give themselves] to all alike."[4] These truths must be founded on something, viz. the Ground of all truth. That is, the realm or sphere of such immutable truths cannot be conceived without some Ground or basis for all truth. This is "the Truth, in whom, and by whom, and through whom those things are true which are true in every respect."[5] This Truth, the greatest that can be thought, of course is what we call "God". Platonic or Neo-Platonic metaphysics stands behind this proof, especially with respect to its reliance on a realm of immutable truths that must somehow be grounded. Whether Augustine's immutable truths reflect something about the way the mind is constrained to work, and just how truths such as logical truths actually relate to the world, are key questions that

affect the soundness of this proof, as does the assertion that there must be some realm of immutable truths that exists "out there" somewhere, independent of humans. Nonetheless the proof does make an important point about truth as a transcendental which points to something outside of this world; and the notion of God as the source of truth, as the greatest Truth, was a stepping stone to Anselm's ontological proof, discussed below.[6]

Persian philosopher and polymath Avicenna (980-1037) is sometimes credited with the first rigorous conceptual or ontological argument, his *contingency and necessity argument*, in his *Book of Healing*. However, this argument is part cosmological so we will consider it in connection with cosmological arguments. The first real purely conceptual argument is the *ontological* argument of Anselm, appearing in his work, *Proslogium*, chapter 3:

> God cannot be conceived not to exist. --God is that, than which nothing greater can be conceived. --That which can be conceived not to exist is not God. And it assuredly exists so truly, that it cannot be conceived not to exist. For, it is possible to conceive of a being which cannot be conceived not to exist; and this is greater than one which can be conceived not to exist. Hence, if that, than which nothing greater can be conceived, can be conceived not to exist, it is not that, than which nothing greater can be conceived. But this is an irreconcilable contradiction. There is, then, so truly a being than which nothing greater can be conceived to exist, that it cannot even be conceived not to exist;. and this being you are, O Lord, our God.

Descartes' version is similar:

> …because I cannot conceive God unless as existing, it follows that existence is inseparable from him, and therefore that he really exists: not that this is brought about by my thought, or that it imposes any necessity on things, but, on the contrary, the necessity which lies in the thing itself, that is, the necessity of the existence of God, determines me to think in this way: for it is not in my power to conceive a God without existence, that is, a being supremely perfect, and yet devoid of an absolute perfection, as I am free to imagine a horse with or without wings.[7]

To simplify, the argument runs as follows: God is the greatest being that can be conceived. If He did not exist, we could conceive of Him as existing, which would be greater. But this is a contradiction. Therefore God must exist. QED. The reader may have an uneasy feeling about this argument, thinking that there is some sleight of hand involved. This impression is basically sound, though the problem with the argument is subtle and difficult to identify.

The ontological argument will probably be debated forever, and for that reason alone, its apologetic value is minimal. There are several standard criticisms of this argument, with that of St. Thomas probably the most acute. Basically, St. Thomas argues that while I cannot conceive of God as not existing, this does not mean that He must exist, "…granted that everyone understands that by this word "God" is signified something than which nothing greater can be thought, nevertheless, it does not therefore follow that he understands that what the word signifies *exists actually*, but only that it *exists mentally*." [8] This is an extremely important point, and it is worth quoting the commentary on Aquinas' argument by Francisco Muñiz:

> God is the most perfect being that the mind of man can conceive. In this case we are not dealing with a real being…but with a being *conceived* by man as the most perfect that can be thought. But does a being conceived in this way entail existence? Undoubtedly it entails *ideal* existence, which is to say *real conceived existence*, since it is impossible to conceive

> something as the most perfect that can be thought without at the same time representing it as really existing. Therefore whoever thinks of God as the most perfect being that can be conceived also thinks of Him as really existing. But just because man's reason *thinks* of something as really existing, does it follow that it *really* exists? Here is the leap from the ideal order to the real order, from the logical to the ontological order. One's *thought* about real existence is one thing; quite different is the *reality* of the existence thought…Man can think of God as real and existing; but to infer from this that He exists really is to confuse two completely different orders, namely the order of being and the order of thought.[9]

That is, our way of thinking does not dictate reality—only, perhaps, our perception of it. So the root problem with the ontological argument is confusion about the relationship of *how we are constrained* to think about reality and how reality *actually is*. Curiously, Hume makes this same mistake in his critique of cosmological proofs when he questions the causal link used in those proofs. Hume argues that because we can *conceive* the cause as separate from the effect, it must be possible for it to be so, because he thinks that whenever we can conceive or think of things as separate, such things must be separate or separable in reality:

> Every perception is distinguishable from another, and may be considered as separately existent…All these [impressions] are different, and distinguishable, and separable from each other, and may be separately considered, and may exist separately.[10]

This is, of course, an entirely gratuitous assumption, one which seems almost absurd, and can only be sustained if one subscribes to Hume's rather problematic analysis of human intelligence. Whatever may be the problems with causality, this is not the root of them.

There is another fundamental problem with the ontological argument related to the very idea of God. God is conceived as an entity, a being, albeit one greater than which nothing can be thought. But is it really licit to think that we can conceive of God as a being, even in an analogical sense? We shall return to this point later.

Kant had a completely different objection to the argument. On the basis of his theory of the mental life, according to which all experience is synthesized, Kant argued that existence is not a predicate in the same way as other predicates, such as color and length. According to Kant, it is not a predicate that really gives us any more *information* about the thing in question, only about its *position* in our mental framework. Therefore there is no sense in saying that God would be greater if He existed than if He did not, because *this does not convey any new information about the subject* (God). However, Kant's argument is grounded in his particular theory of the mental life, so his statement that "existence is not a predicate" (in the sense of conveying new information) is true only if one accepts Kant's belief that our experience of the world is the result of the mind's synthesizing activity in accordance with what Kant terms the "categories". This limits the value of his critique, even if we agree that existence, as a predicate, is different than predicates such as size or color.

Franciscan theologian and philosopher John Duns Scotus (c. 1265-1308) also advances a conceptual proof for the existence of God, related to the ontological argument. Scotus appreciates Anselm's general approach, and believes that his proof can be fixed, though it is only capable of "probable persuasion", not rigorous demonstration, since Scotus believed that a rigorous demonstration of God's existence had to be *a posteriori*.[11] Scotus rejects the general line of Aquinas' criticism of Anselm's argument, viz. that there is an illicit transition from possible to real existence (in fact this is not the root of Aquinas' argument). Rather, Scotus argues that Anselm never proved that our concept—

the concept—of the infinite is actually possible. The whole idea of a being "greater than which nothing can be thought" is ultimately a truth of revelation, of faith, not from any actual and distinct knowledge of God that we have. So he sets out to prove this, utilizing a negative proof, i.e., he attempts to show that the concept of an infinite being—an *ens infinitum*—does not involve a contradiction. Were there a contradiction in this concept, our minds would discern it, since they have for their object "being as being", *ens in quantum ens*. Having established that the concept of an infinite being, at least, involves no contradiction, and therefore is possible, Scotus restates Anselm's argument:

> God is a being conceived without contradiction, who is so great that it would be a contradiction if a greater being could be conceived. That the phrase "without contradiction" must be added is clear, for anything, the very knowledge or thought of which includes a contradiction, is called "inconceivable", for it includes two conceivable notions so opposed to each other that they cannot in any way be fused into a single conceivable object…It follows then that the greatest object conceivable without contradiction can actually exist in reality.[12]

This, however, is not yet the desired conclusion, so Scotus argues further, introducing a bit of causal metaphysics (proved in connection with an *a posteriori* proof) to bridge the gap:

> …this being actually exists because the highest conceivable object is not one which is merely in the intellect of the thinker, for then it could both exist, because as something possible it is conceivable, and yet could not exist, because the idea of existing in virtue of some cause is repugnant to its nature…Therefore what exists in reality is conceivably greater than what exists only in the intellect…[because] whatever exists is greater that what is solely in the intellect.[13]

Obviously this proof hinges on Scotus' reasoning about the concept of an infinite being, and whether this involves a contradiction. His argument that it does not, because otherwise we would discern the contradiction, seems rather problematic today, since thanks to the work of Georg Cantor (1845-1918) we now understand how complex the concept of infinity really is, and that there is a hierarchy of infinities. This problem affects Scotus' other (*a posteriori* or Cosmological) proofs as well, as we shall see. Moreover, Scotus' version of the argument does not escape the criticism leveled against Anselm's version, since the fact that we have to *conceive* of something existing in reality as greater than something existing solely in the intellect does not mean that it *actually* exists.

Before we leave the ontological argument, it is worth noting that the famous mathematician and logician Kurt Gödel (1906-1978) formulated a version of the argument in modal logic terms. Gödel of course is famous for his *Incompleteness Theorem* (1931), which showed (contrary to all belief up to that point) that large parts of mathematics, such as arithmetic, are fundamentally incomplete, i.e., there exist statements in them that are *true if and only if they are not provable*. Among other things, this showed that truth is a broader concept than provability. Before discussing Gödel's version of the ontological argument, let us recall that there are two requirements for an argument to be sound: (1) it must be logically valid, and (2) the premises must be true. Complete discussion of Gödel's modal logic argument is beyond the scope of this text, but we can note the following about it. Gödel claims as an axiom that there are *positive* properties which are "good" is a certain sense: "Positive means positive in the moral aesthetic sense (independently of the structure of the world)…It may also mean pure *attribution* as opposed to *privation* (or containing privation)."[14] He also postulates that necessary existence is a positive property—essentially Anselm's

critical assumption dressed up in modern logical form. He then defines a new property *G*, the "God-like" property, and any object that has this property is called *God*. The argument then goes roughly as follows: having *G* entails having all positive properties in all possible worlds, so it entails having necessary existence. He argues that in some possible world something is *G(x)*, i.e., God-like, and therefore is necessarily existing. But even if one grants that Gödel's argument is logically valid (and this has been disputed), it falls victim to the same objection raised by St. Thomas against Anselm: even if we can't conceive, in a logical sense, of God as not existing, it still does not follow that he actually exists in reality. In short, some premises are not known to be true of the real world. In particular, the premise (axiom) about positive properties is rather vague, so it is unclear whether it applies to the real world. This causes problems with the postulate about necessary existence. The claim that being God-like (having *G*) entails having all positive properties, which Gödel also uses as an axiom (premise), appears to be untrue in the real world because some positive properties, such as justice, may exclude others, such as mercy. The net result is that simply formalizing Anselm's argument does not overcome the objections to it, which are based not on a defective logical structure, but on the questionable truth of some of the premises, and the falsity of the suppressed premise that *if we have to think about reality in a certain way, it must actually be that way*. It is perhaps not surprising that Gödel would make this mistake, since his life was devoted to the foundations of mathematics, where objects are real but in a different way than in the world—they are real by postulation, not physically real. All that Gödel's argument could hope to establish is the reality of God by postulation, which is not what such arguments are intended to do. Rather they seek physical existence, so to speak.

Summary. The conceptual or *a priori* proofs, though not sound arguments, bring into focus some extremely important questions: (1) To what extent does the way we are constrained to think about reality actually correspond to reality? Does it matter whether we are dealing with finite (limited) or infinite (unlimited) beings, entities, or concepts of them? (2) How do we know that our intuition and reasoning are sound when dealing with the infinite? (3) Does it make sense to talk about something infinite as an "entity"? (4) How do logic (and mathematics) link to the real world, and by extension, in what way do the things that they deal with exist? These questions apparently never occurred to the propounders of the ontological argument in its various forms, but they are important in the context of today's knowledge. No ontological or *a priori* proof can have even "probable persuasion" value unless these questions are given definitive answers, which to date they have not been given. Zubiri's notion of postulated reality greatly clarifies some of them, however, as we shall discuss in subsequent chapters.

Cosmological or A Posteriori *Proofs*

Cosmological proofs are one category of what are sometimes labeled *a posteriori* proofs, that is, proofs that are based on our knowledge or experience of the world. That such proofs can be constructed appears to be confirmed by the words of St. Paul: "The invisible things of Him are clearly seen, being understood by the things that are made." (Romans 1:20). Cosmological proofs accordingly always start with some fact or presumed fact about the world. Contingency and causality are often chosen, because of our observation that things in the world are contingent, not necessary, and events always seem to have a cause. By induction or generalization the chosen concept is elevated to the status of a universal principle or truth, which applies to *all* of reality. In the case of causality, for example, it is "every event has a cause". ("Cause" here is cause in the traditional sense of uniformity, determinism, and contiguity, and it refers to things in the "outside" world, not to our own ideas). The idea behind any cosmological proof is to show that *a*

paradox arises unless there is some type of entity existing outside of our world whose existence precludes the paradox, and who must therefore exist. In the case of causality, the paradox is that there will be an infinite regress of causes, and nothing would ever happen; therefore to prevent this impossible situation there must be a First Cause, which is then identified with God. Obviously the critical step in any cosmological proof is the induction, whereby a fact drawn from our realm of experience is converted into a universal principle. Ideally the fact is so self-evident, and conceptually so clear, that no one can seriously question it. In practice, questions are inevitably raised—causality for example is a very obscure concept in many respects—or human knowledge may advance in such a way as to reveal aspects of the world hitherto unsuspected, calling the principle into question. Science, in particular, has allowed us to experience aspects of reality far removed from our ordinary experience, but just as real—at the level of the extremely small, the extremely large, the extremely fast, the extremely hot, the extremely cold, and well beyond the limits of our vision. In many cases, what we have found—and verified experimentally—is at variance with "common sense". If the result is that the presumed universal principle becomes too controversial, the value of the proof with respect to conversion quickly collapses, *even if the argument used is actually sound*. Appendix A has a detailed discussion of causality. An important subcategory of cosmological proofs are the *arguments from design*, which will be considered separately.

Avicenna's Argument from Contingency and Necessity

This argument appears in Avicenna's *Book of Healing* (*Kitab al Shifa'*, c. 1027), actually an encyclopedia of science and philosophy, not a medical text. Avicenna's philosophy is heavily weighted to contingency and necessity, so his proof naturally emerges from his consideration of these notions. He starts from the "fact" of existence, specifically, the fact that our experience of the world manifests to us that things exist. It also manifests that the existence of these things is non-necessary since we observe that they (all) come into existence, remain, and then pass out of existence. This is "contingent" existence, as opposed to "necessary" existence, which could not come into and the pass out of existence. Something whose existence is contingent cannot arise, cannot come into existence, unless it is made to do so by a cause. Every chain of causes in the world must trace to an un-caused cause; otherwise there would be an infinite number of causes in the chain, which would therefore never terminate. This actual infinite regress of causes is forbidden because nothing would ever actually start the chain, so nothing would happen in the world (according to Aristotelian metaphysics). Therefore any chain of contingent existent things (entities) must have a beginning, which is its ultimate causal principle, a self-subsistent entity that is Necessary. This entity, which cannot be in our world, of course, is what we call "God".[15,16, 17] There is a suppressed premise, namely that every cause takes a finite amount of time to act, so an actual infinite number of causes would take an infinite amount of time for any action to take place at the end of the chain. (More or less the same assumption made by Zeno in his famous paradox). This is important, because today we know a great deal more about infinity and infinite series than did the medieval philosophers and theologians. For example, we know that an infinite sum can yield a finite number (e.g., $\sum_{n=0}^{\infty} \frac{1}{2^n} = 2$), which implies that if the time for each step or link in an infinite chain was smaller by, say, a factor of ½, the chain would not in fact require an infinite time. One can also argue that Avicenna's claim of universality for contingent existence, i.e., that all things come into existence and later perish, is a generalization that might not be true for everything in the universe; certainly the Greeks did not think that it was

true of the universe itself. Of course, Avicenna could argue that the origin of the universe in time is a truth of revelation; but that would in effect beg the whole question of the existence of God. And Avicenna's argument, of course, rests squarely on the usual causality principle, viz. that every event must have a cause, in particular, an efficient cause—another claim that does not seem to square with our understanding of the quantum world.

Aquinas' Five Ways

The most important and best-known cosmological arguments for the existence of God are those given by St. Thomas in Part I of the *Summa Theologica*. St. Thomas accepts Aristotle's philosophical principles as more or less as synonymous with reason itself, and therefore constructs his proofs *on the basis of those principles*. Perhaps the most important of these principles—or better, underlying assumptions—is the notion of *sensible intelligence*. This paradigm of knowing is the belief that all knowledge originates through the senses, which require the mind (reason) to assemble sense data into something that provides us with access to reality. According to this paradigm, the senses deliver confused content to the intelligence, which then figures out or reconstructs reality. The Scholastics said, *nihil est in intellectu quod prius non fuerit in sensu nisi ipse intellectus.* This is the version of the logification of knowing used by St. Thomas; and of course because *ratio* (reason) is our primary access to reality, and (intellectually at least) to God, rational proofs of God's existence should thus be the starting point of any systematic theology. God then becomes a reality-object which is "out there". Much of Medieval theological effort (and theological effort up to our own day) was devoted to such proofs, such as those of St. Thomas.

St. Thomas utilized notions such as cause and effect, motion, and contingency. But he did not make use of them as everyday knowledge, as one might expect. That is, he does not start from our daily observations about causes, movement, and the contingency of things *simply as facts about the world*. Rather, he framed his proofs in strictly in the context of Aristotelian metaphysics. Among the Aristotelian assumptions he made is the idea that things in the world are separable and act upon each other; this is the idea of *substance*. With respect to change, or movement, he adopts Aristotle's notion that movement is a *state of the moving thing*, which consists in passing from potency to act. He also adopts Aristotle's basic physics, according to which substantial change (e.g., wood burning to ash in a fire) is the result of something losing its substantial form, going to prime matter, and then back up again with a new substantial form. He accepts Aristotle's (and the Greeks') view that reason, unaided, can penetrate to the truths about how the world works. Perhaps most important for his theology, St. Thomas adopts Aristotle's reasoning about causality, together with some of the ideas from the Islamic philosophers about the productive power of causes. St. Thomas believes that causes are "out there", that we can perceive them, and that, indeed, everything that happens is caused by something. Causality in this strong sense is used by St. Thomas throughout his philosophy and theology; in particular, it plays a key role in the second of his famous five proofs of the existence of God,[18] and in his explication of the Sacraments and sacramental efficacy.

In many ways, causality is the key metaphysical notion for both Aristotle and St. Thomas, because it is the basis of change in the world and at the same time our knowledge of it. St. Thomas' principal contribution to the theory of causality has to do with creation *ex nihilo*, which is a fact of Revelation and which Aristotle never considered. Aristotle's definition of efficient causality requires that one thing act on another, already existing thing, to bring it from potency to act. St. Thomas basically generalizes the notion of efficient causality to mean contributing being to, or contributing to the being or becoming of something else. Or in other words, efficient causality in the sense of creation

does not refer to motion and applies to the entire being of the effect, whereas ordinary efficient causality has to do with motion and applies to only part of the being of the effect.[19] Thus Aristotle's efficient causality is a special case of St. Thomas'. St. Thomas also utilizes other vocabulary and concepts of Aristotle's metaphysics, including the notion of change as reduction from potency to act (first proof), the notion of separable substances (first proof), certain ideas about possibility and necessity (third proof), distinct degrees of being and notion that higher cannot come from lower (fourth proof), and convergence of cosmos toward an end (fifth proof). In every case, the soundness of the proof depends on the truth of Aristotle's metaphysics.

(i) The First Way: Change in the World

The first proof is based squarely on Aristotle's notion of change (*kinesis*) or movement as reduction of potency to act:

> The first and more manifest way is the argument from motion. It is certain, and evident to our senses, that in the world some *things* are in motion. Now whatever is in motion is put in motion by another, for nothing can be in motion *except it is in potentiality to that towards which it is in motion*; whereas a thing moves inasmuch as it is in act. For *motion is nothing else than the reduction of something from potentiality to actuality*. But nothing can be reduced from potentiality to actuality, except by something in a state of actuality… It is…impossible that in the same respect and in the same way a thing should be both mover and moved, i.e. that it should move itself. Therefore, whatever is in motion must be put in motion by another. If that by which it is put in motion be itself put in motion, then this also must needs be put in motion by another, and that by another again. But this cannot go on to infinity, because then there would be no first mover…Therefore it is necessary to arrive at a first mover, put in motion by no other; and this everyone understands to be God. [italics added]

Observe that this proof does not refer to simple fact of change in cosmos, but change as interpreted in Aristotelian metaphysics. Specifically, it is based on fact that for Aristotle, change is passing from *potency* to *act*. Any such change requires something in state of actuality, and in order to eliminate an infinite regress (the paradox), leads to notion of a First Mover or Unmoved Mover. This is change in an absolute sense: the entity which changes has to potential (potency) to be in another state, and the agent of change causes this entity to reach this new state, i.e., for its potency to be converted to an act. The entity now possesses or is in this new state, for any observer who cares to look at it.

But the idea of change as a passing from potency to act is an *interpretation* of the reality of change, not the *change itself*. There are other interpretations of change; change need not be considered a "state" of the changing thing, but a *functional relation between things*. Modern science, in particular, the theory of relativity, tells us that notions such as time and simultaneity are a function of the relative velocity of the observer and what is observed. Thus events that are simultaneous for you may not be so for me—throwing into doubt the entire idea of change in the absolute sense assumed by this proof. A common example often given in elementary physics classes is the moving railroad car. For an observer on the moving railroad car, the car appears stationary, and since the speed of light is the same for all observers, light from a flash bulb hits the two ends of the car at the same time, as shown in Figure 3-1(a). However, for a stationary observer, the light will hit the left side of the car before it hits the right side, as illustrated in Figure 3-1(b). So what, in fact, is the state of the moving car—are both ends illuminated simultaneously, or not? This is a very serious problem for the Aristotelian metaphysics used in the proof, which assumes that the car has been reduced to

a new state in an absolute sense that should be the same for all observers. This is an example of one way in which our experience of reality, enlarged by science, gives us new and better insight into time, causality, matter, and other areas that earlier generations thought they understood well.

Moreover, things may not even be separable in the sense required (*substances* in Aristotelian terminology). That is, in Aristotelian metaphysics, things are separate entities which interact causally but retain their identity (unless they undergo substantial change). This description works fairly well at the scale of ordinary life. But at very small scales, matters are quite different. The electrons in an atom form a probabilistic "cloud" around the nucleus, and are really not distinguishable in any physically meaningful sense.

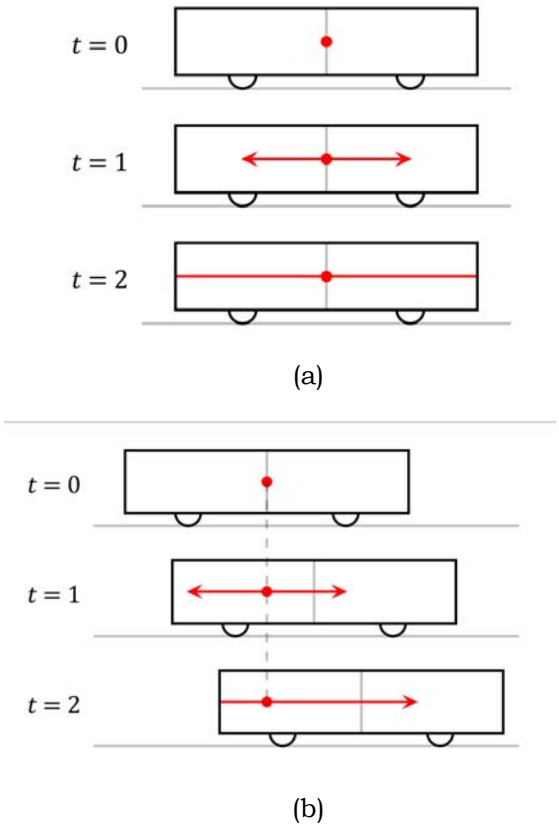

Figure 3-1. (a) Flash of light seen by observer on moving railroad car[20]. (b) Flash of light seen by stationary observer

(ii) The Second Way: Causality

Consider the second proof, based on the notion of efficient causality:

> In the world of sense we find there is an order of efficient causes. There is no case known (neither is it, indeed, possible) in which a thing is found to be the efficient cause of itself; for so it would be prior to itself, which is impossible. Now in efficient causes it is not possible to go on to infinity, because in all efficient causes following in order, the first is the cause of the intermediate cause, and the intermediate is the cause of the ultimate cause, whether the intermediate cause be several, or only one. Now to take away the cause is to take away the effect. Therefore, if there be no first cause among efficient causes, there will be no ultimate, nor any intermediate cause. But if in efficient causes it is possible to go on to infinity, there will be no first efficient cause, neither will there be an ultimate effect, nor any intermediate efficient causes; all of which is plainly false. Therefore it is necessary to admit a first efficient cause, to which everyone gives the name of God.

This proof utilizes the classical concept of causality, which includes uniformity, efficacy, the notion that every cause must have an effect, and the notion that a cause exerts a real influence on the effect. It is used because the idea of causality, in this sense, has been elevated through induction to a metaphysical principal with universal applicability, thus enabling us to draw inferences about things which cannot be directly perceived. *The proof absolutely requires belief in causality in this strict metaphysical sense in order to work.* The problem, of course, is that except for the case of human actions, we do not directly perceive the real influence of cause upon effect; it is, rather, an inference. Nowadays we commonly use probability and statistics to describe many phenomena. This can be merely a shorthand way

to get results, but in many cases it is not clear that everything that happens in fact does have a cause in the foregoing sense. And this is true in two senses, which merit further discussion.

First, in the quantum world, phenomena are governed by the *Uncertainty Principle*, which states that conjugate quantities cannot even theoretically be measured with arbitrary accuracy, and by Schrodinger's Equation, which replaces deterministic position and momentum with a probability cloud. Conjugate quantities include position and momentum, and energy and time. This means that prediction of the behavior of systems at the microscopic level is limited. Moreover, this limitation is not a function of our abilities; it is a reflection of the reality at that level: things behave *as if they did not have the classic deterministic quantities*. The position of particles can only be described by a probability distribution, and the particle has a finite probability that it can be *in many places at the same time*. When we observe it, and fix its place, we no longer know much about its momentum (speed). Moreover, this has been verified to an extremely high degree by experiments, and such quantum phenomena are behind macroscopically observable effects such as tunneling (a particle spontaneously appears outside a box within which, classically it should forever be contained) and superconductivity.

And second, at the macroscopic level, the level of everyday experience, we observe that causality frequently only exists in a statistical, not a uniform deterministic sense. For most practical purposes the nexus of causes is too complex to fathom and therefore to verify. The weather is an excellent example: the number of factors affecting weather is so enormous that we cannot say with any degree of certainty that every aspect of our weather is caused in the sense under discussion. If the weather is a chaotic system, which seems likely, exceeding small changes in one place can result in significant weather changes far away. If one objects by saying that if we could figure out all the contributing factors and measure them to the requisite degree of accuracy, we could exactly predict the weather, the response is that ultimately quantum mechanics limits the precision with which we can measure quantities. We would thus be unable to reach our goal. Many other examples can be cited where even ultra-small differences in value lead, over time, to significant divergences in behavior. The famous three-body problem in mechanics, or still more, the *n*-body problem (determining how three or more bodies interact under the force of gravity), is a perfect example. This makes it makes it difficult to accept the classical idea of causality and of real production.

It is important to understand, in this context, that science is not some "different" knowledge of the world. When we look through a microscope, or through a telescope, or even use a particle accelerator to probe atoms, we are seeing the same world that we normally perceive, just smaller or larger aspects of it. So any principle such as "every effect has a cause" must be true at whatever level we explore. If our experience at these levels is different than that at our normal level, we must take the new experience into account. That experience, verified amply by experiment, is that causality in the classical sense breaks down at small scales, and this breakdown can be reflected at larger scales as well. If one objects that this may be true for science but is not true of reality in some other way, all we can say is that our experience of the world—that on which the traditional notion of causality is supposed to rest—when amplified by scientific instruments, tells us that every event does not have a cause in any observable sense. This renders causality in the classical sense extremely problematic for proofs of God's existence. It does not mean that God somehow has lost control of the world, or is constrained by the same uncertainty. God sees the world in a creative vision, not as a superphysicist, and certainly not piecemeal and in time, as we do. "For my thoughts are not your thoughts, neither are your ways my ways," as we

read in Isaiah.[21] To argue that God knows all things and therefore there must be determinism and causality in the classical sense is to beg the question with respect to proving God's existence. We must build proofs on what we can observe of the world, not on what our speculation about God's knowledge of the world might be.

As discussed elsewhere,[22] causality is a *functional* relation among things rather than a deterministic connection mediated by a certain notion of causality. Thus the classical idea of causality required for the particular proof in question here is merely an hypothesis, or speculation, not a verified fact. Moreover, other metaphysical interpretations of "cause and effect" are possible, such as occasionalism. Curiously, Kant accepted the idea that at least as far as our mental processes are concerned, we are programmed to believe that every cause must have an effect, and that everything must be caused by something else that exerts a real influence on it. But he concluded that this belief is the result of the *way we synthesize experience*, not necessarily the *way things are in themselves*—they might or might not be causally related in this way, we do not know for sure. Thus he rejected the proof as a sound argument. Once again, however, Kant's rejection depends on acceptance of his own theory of the mental life.

(iii) Third way: Possibility and Necessity

This proof rests on the observation that things in the world are contingent—they do not have to exist or be the way that they are, and is similar to Avicenna's argument, discussed above:

> We find in nature things that are possible to be and not to be, since they are found to be generated, and to corrupt, and consequently, they are possible to be and not to be. But it is impossible for these always to exist, for that which is possible not to be at some time is not. Therefore, if everything is possible not to be, then at one time there could have been nothing in existence. Now if this were true, even now there would be nothing in existence, because that which does not exist only begins to exist by something already existing. Therefore, if at one time nothing was in existence, it would have been impossible for anything to have begun to exist; and thus even now nothing would be in existence---which is absurd. Therefore, not all beings are merely possible, but there must exist something the existence of which is necessary....we cannot but postulate the existence of some being having of itself its own necessity, and not receiving it from another, but rather causing in others their necessity. This all men speak of as God.

This proof hinges on induction from the observed fact things come into being and are destroyed, and hence they are not necessary, i.e., necessarily existing or necessary to exist. But this is true only if generation and corruption are not, in themselves, something necessary in nature. That is, nature itself may require generation and corruption of individual things, but still continue existing. The possible and the necessary are not given in nature, but are only inferences from it. If something can "not be", it does not follow that it must "not be" at some time.

(iv) Fourth Way: Gradation in Things

This proof rests on the notions of things being "better" and "worse", "more" or "less", "greater" or "lessor":

> Among beings there are some more and some less good, true, noble and the like. But "more" and "less" are predicated of different things, according as they resemble in their different ways something which is the maximum, as a thing is said to be hotter according as it more nearly resembles that which is hottest; so that there is something which is truest, something best, something noblest and, consequently, something which is uttermost being; for those things that are greatest in truth are greatest in being, as it

> is written in Metaph. ii. Now the maximum in any genus is the cause of all in that genus; as fire, which is the maximum heat, is the cause of all hot things. Therefore there must also be something which is to all beings the cause of their being, goodness, and every other perfection; and this we call God.

Clearly the proof depends on the observation or inference that there are distinct degrees of being, and a lower degree must somehow come from a higher. It also depends on the Aristotelian notion of classification of all things, and the formal causality inherent in that classification. Thus, the premise that "the maximum in any genus is the cause of all in that genus" only makes sense in the Aristotelian framework, and even then is highly dubious. We now know through science that fire is *not* the cause of all hot things (Aristotle confused *heat*, *temperature*, and *specific heat* or *heat capacity* in his writings); radioactivity or radiant energy in any form can cause things to become hot, for example. Nor does our experience give the required degrees of being—that is a very subjective inference that can only be generalized with great difficulty. Moreover, biological evolution can, if true, cause the superior to arise from the inferior.

(v) Fifth Way: Order in the World

This proof is an early version of what has become known as the *argument from design*. But because it is somewhat different in its approach and assumptions, we consider it separately here. The argument is based on the inference that bodies act for some end:

> We see that things which lack intelligence, such as natural bodies, act for an end, and this is evident from their acting always, or nearly always, in the same way, so as to obtain the best result. Hence it is plain that not fortuitously, but designedly, do they achieve their end. Now whatever lacks intelligence cannot move towards an end unless it be directed by some being endowed with knowledge and intelligence; as the arrow is shot to its mark by the archer. Therefore some intelligent being exists by whom all natural things are directed to their end; and this being we call God.

The argument here clearly depends on the notion that all things act for an end. But the convergence of all cosmic processes toward an end is not a fact but a theory. Except for human affairs, we do not know if all things act for an end. This is certainly implied in the Bible, but without begging the question that cannot be introduced as evidence here. Therefore the proof is valid only if this theory can be validated without reference to Scripture, which will be very difficult. At least on the phenomenological level, living things act according to environmental stimuli, based on genetically programmed information and systems built on it. Sometimes this programming does not give the best result, as when a herd of animals stampedes and goes over a cliff. The degree to which the information seen in living organisms is the result of natural processes as opposed to external intervention is a hotly debated question in evolution.[23,24] For entities such as rocks and stars, it appears that they behave according to physical laws which do not involve any end. Thus the premise required for this argument does not appear to be true.

Scotus' a posteriori *proof*

Duns Scotus' argument for God's existence is one of the great theological efforts of the Middle Ages. It is a very long and complicated affair, which comprises many interim conclusions and corollaries, and exists in at least four versions.[25] The argument involves a demonstration of what Scotus terms the "triple primacy", a discarding of Aristotle's proof (of a prime mover) based on motion as unnecessary, Scotus' definition of essentially versus accidentally ordered causes, Scotus' argument from possibility, and perhaps most importantly, Scotus' demonstration of God as an infinite being. Indeed, for Scotus, the highest concept of God that

can be obtained by natural (as opposed to supernatural) means is of God as an actually infinite being. Thus any complete and comprehensive argument for God's existence must demonstrate that some being—presumably God—is actually infinite. This is in contrast to most Scholastic philosophy, such as that of Aquinas, for which infinity is a derived attribute, not something essential to the proof of God's existence itself.

There are three main steps in Scotus' argument: (1) there is a first efficient cause, which is also a final cause and a most perfect being; (2) these three orders or characteristics actually coincide in a single, unique nature; (3) this nature is in fact actually infinite. The first two steps together demonstrate the "triple primacy" of efficient causality, finality, and perfection or eminence. Scotus' procedure with respect to the orders is to establish that there is something first or primary in each order, next that it is uncaused, and finally that it actually exists.[26] The versions of Scotus' proof run to hundreds of pages and so only a few relevant portions of them can be discussed here; however, those portions cover key points. Here is a typical argument, this one concerning the primacy of efficient causality:

> Among beings which can produce an effect one is simply first, in the sense that it neither can be produced by an efficient cause nor does it exercise its efficient causality in virtue of anything other than itself. Proof: Some being can be produced. Therefore it is either produced by itself or by nothing or by something other than itself. Now it cannot be produced by nothing, for what is nothing causes nothing. Neither can it be produced by itself…Therefore it can only be produced by another. Now let this other be called *A*. If *A* is first in the way we have described, then I have what I seek to prove. But if it is not first, then it is some posterior agent…Let us assume that this being is not first and call it *B*. Then we can argue of *B* as we did of *A*. And so we shall either go on *ad infinitum*…or we shall reach something that has nothing prior to it. However, an infinity in the ascending order is impossible; hence a primacy is necessary because whatever has nothing prior to itself is posterior to nothing prior, for a circle in causes is inadmissible.[27]

This argument is interesting because it shows both Scotus' great facility, and at the same time the lack of knowledge about reality that characterized the Middle Ages. We note two points: Scotus observes that something must be produced by itself, by nothing, or by something other than itself. He dismisses the second as impossible "for what is nothing causes nothing". But there is a problem here, which even Scotus missed. If we say that something is caused by nothing, we may simply mean that it came about *without an identifiable external cause*. This is not quite the same as saying that "nothing"—in the sense of *nihil*—caused it. It may have come about simply by the power of reality. This is exactly what happens in quantum mechanical phenomena, such as the spontaneous creation of particle-antiparticle pairs, or the spontaneous decay of a uranium atom. It just happens: there is no cause in the sense that Scotus considers. Of course, this discovery was the subject of great debate among scientists (see Appendix on Causality), but is now settled science. The degree to which this absence of causality on the micro scale affects events on the macro scale is not really known, especially with respect to extremely complex entities such as living systems; but that is irrelevant. Things can happen without causes, and this is enough to vitiate the argument. The second point concerns the *ad infinitum* argument. We now know, for instance, that an actual infinity can sum to a finite number, e.g., $\sum_{n=0}^{\infty} \frac{1}{2^n} = 1$. So if the causes can act in shorter and shorter times, there can be an infinite number of them. For Scotus' ar-

gument to work, he needs to add some additional metaphysical premise to the effect that all causes require some minimal time to operate. This is actually an empirical statement and difficult to verify, rendering the argument problematic. When one makes metaphysical statements as the basis for an argument, and claim implicitly or explicitly that they are true of all reality, one must be able to justify the statements and the audience must understand all the terms well.

Now let us turn to the third phase of Scotus' argument, that which concerns the actually infinite nature of the unique nature determined in the first two phases. Scotus gives several arguments to justify his belief in the infinite nature as following from the triple primacy. Here is the first:

> If the First Being, by itself and not in virtue of another, moves with an infinite movement, then it has not received such power of movement from another. Hence it has in its power at one and the same time the totality of its effect, because it has this power independently. But, whatever has an infinite effect in its power at one and the same moment is infinite.[28]

Here is the second:

> The things that can be known are infinite in number. But they are actually known by an intellect which knows all things. Therefore that intellect is infinite which, at one and the same moment, has actual knowledge of all these things. Now such is the intellect of the First Being.[29]

Without digging too deeply into these arguments, we may note that they do turn on a presumed understanding of the infinite, both what it is and what it can do. What, for instance, is "infinite movement"? How do we know that there is an intellect which knows all things? In the years since Scotus' time, we have learned some things about the infinite and infinity, for example that there are multiple infinities: $\aleph_0, \aleph_1$ [Aleph null, Aleph one], etc. At which of these levels does the presumed infinite intellect operate?

Scotus gives his conclusion as follows:

> *In the realm of beings there actually exists a being which has a triple primacy, and this being is infinite. Therefore some infinite being actually exists*. This notion of God as an infinite being is the most perfect absolute concept we can have of him…Consequently, we prove that God, conceived under the most perfect aspect possible to us, actually exists.[30]

This, then is the net result of Scotus' lengthy arguments. But it does leave the reader with an uneasy feeling that too many unverifiable assumptions about reality have been made, especially in light of the fact that assumptions at one time considered secure have since been overthrown, with knowledge of events without causes, the failure of simultaneity, and the discovery of multiple infinities.

Common problem of all cosmological arguments

There is also a common problem with nearly all cosmological arguments: how does one get from what is supposedly proved (unmoved mover, first cause, supreme intelligence, plenitude of being, infinite being, etc.) to what we understand by God? How do we prove that an infinite being, for example, corresponds to our notion of God? With respect to Scotus' conclusion of infinite being, Zubiri notes:

> The fact is that Scotus searches for what the Scholastics called "metaphysical essence", or the first metaphysical concept of Divine Being; Scotus believes he has found it in infinitude. But what we all understand by God, when we search for Him, is not a metaphysical essence, but something simpler: an ultimate reality, fountain of all the possibilities which the human being has, and from Whom the human being receives, through supplication, the aid and strength to be.

> Therefore the infinite being of Scotus is not formally…this God *qua* God.[31]

Scotus' argument, in fact, seems to have things backward: God would be infinite because he is God; He would not be God because He is infinite. Of most importance is what function God has in our lives; if we cannot relate a metaphysical notion or proof to this, we have failed to meet our objective:

> in order for this "ultimate" to be God it is necessary that He be at one and the same time and formally "possibilitating" and "impelling". Mere infinitude is not. Once again, at the end of these arguments we find ourselves in Scotus, as well as in St. Thomas, with a supreme being. But is this being God? That is the unresolved question.[32]

This unresolved question suggests that other approaches to the problem should be investigated.

Arguments from design (teleological argument).

Things that are designed are all around us, and form part of our daily existence. They may be products, systems, or forms of organization (biological, societal, industrial, or political). We can readily recognize the hand of human beings in these things, and thus signs of intelligent activity responsible for design and execution, going all the way back to primitive stone tools. The argument from design builds on our capacity to recognize the tell-tale signs of intelligent activity, and looks at what may be termed *natural things*, such as flora, fauna, our planet, or even the universe, and infers that such things are too complex and too finely tuned (at least with respect to human existence) to be the result of blind chance. The inference is that the object in question had to be the product of some intelligence, some type of mind, and obviously it could not have been human intelligence or mind. Therefore it must be some supernatural power—God—that intelligently created these things. The argument accords with key Biblical passages:

> The heavens declare the glory of God; the skies proclaim the work of his hands. Day after day they pour forth speech; night after night they display knowledge. There is no speech or language where their voice is not heard. Their voice goes out into all the earth, their words to the ends of the world. (Psalm 19:2-5).
>
> For the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made, [even] his eternal power and Godhead. (Romans 1:20)

The argument from design has a long history, going back to pre-Christian times. According to Xenophon, Socrates (469-399 BC) observed that

> …does it not seem to you like the work of forethought, to guard the eve, since it is tender, with eyelids, like doors, which, when it is necessary to use the sight, are set open, but in sleep are closed? To make the eyelashes grow as a screen, that winds may not injure it? To make a coping on the parts above the eyes with the eyebrows, that the perspiration from the head may not annoy them? To provide that the ears may receive all kinds of sounds, yet never be obstructed? and that the front teeth in all animals may be adapted to cut, and the back teeth to receive food from them and grind it? To place the mouth, through which animals take in what they desire, near the eyes and the nose? and since what passes off from the stomach is offensive, to turn the channels of it away, and remove them as far as possible from the senses?—can you doubt whether such a disposition of things, made thus apparently with attention, is the result of chance or of intelligence?[33]

Later Cicero echoed this perception:

> When you see a sundial or a water-clock, you see that it tells the time by design and not by chance. How then can you imagine that the universe as a whole is devoid of purpose and intelligence, when it embraces everything, including these artifacts themselves and their artificers?[34]

There have been many variants on the argument, but these two early passages capture its essence very well. Aquinas' Fifth Way is closely related to the argument from design. The argument has a great deal of persuasive power, especially among those who study and meditate upon nature. One of its more famous versions appears in English theologian William Paley's (1743-1805) book *Natural Theology* (1802), which discussed design in the context of a watch:

> In crossing a heath, suppose I pitched my foot against a stone, and were asked how the stone came to be there; I might possibly answer, that, for any thing I knew to the contrary, it had lain there for ever: nor would it perhaps be very easy to show the absurdity of this answer. But suppose I had found a watch upon the ground, and it should be inquired how the watch happened to be in that place; I should hardly think of the answer which I had before given, that, for any thing I knew, the watch might have always been there. Yet why should not this answer serve for the watch as well as for the stone? Why is it not as admissible in the second case, as in the first? For this reason, and for no other, viz. that, when we come to inspect the watch, we perceive (what we could not discover in the stone) that its several parts are framed and put together for a purpose, e.g. that they are so formed and adjusted as to produce motion, and that motion so regulated as to point out the hour of the day; that, if the different parts had been differently shaped from what they are, of a different size from what they are, or placed after any other manner, or in any other order, than that in which they are placed, either no motion at all would have been carried on in the machine, or none which would have answered the use that is now served by it…the inference, we think, is inevitable, that the watch must have had a maker: that there must have existed, at some time, and at some place or other, an artificer or artificers who formed it for the purpose which we find it actually to answer; who comprehended its construction, and designed its use.

This version of the argument is famous because of its influence on Charles Darwin (1809-1882), whose theory of evolution was in some sense an answer to Paley. Darwin argued that natural processes could in fact mimic the activity of mind and create things that appear to be designed by some intelligent being. The theory of evolution, though widely accepted, is not without its critics, both inside and outside of science.[35] Some have noted that the observed complexity and fine-tuning in organisms and biological systems in general is extremely high, and so they have argued that the random processes postulated as the source by Darwinian evolution could not account for it even over time spans much longer than the estimated age of the universe (13.7 billion years). In addition they have argued that some of the transitions required by Darwinian evolution are not physically possible. They have therefore challenged biologists to demonstrate that they are.

Nowadays the argument from design is usually expressed in terms of physics and cosmology. Well-known versions have been advanced by cosmologists and physicists such as John Barrow, Frank Tipler, and John Polkinghome. These arguments generally center on the fine-tuning of the universe with respect to its physical constants. Indeed, many scientists who are not "believers" have remarked on what appear to be extraordinary coincidences or unusual facts in physical theory and our ability to understand nature. Early on

Eugene Wigner commented on the unexpected effectiveness of mathematics in science.[36] Ward and Brownlee were intrigued by the confluence of conditions on earth that make life possible.[37] Michael Rowan-Robinson is fascinated by the fact that there appear to be only nine numbers needed to summarize our knowledge of the physical world.[38] Others are enthralled by the beauty and vastness of the cosmos, and this has led to high-profile conversions, such as that of astrophysicist Robert Jastrow (1925-2008). Many are fascinated by the sheer scale of the universe, as compared to human dimensions, and interpret it as a measure of God's greatness and transcendence. If our galaxy is taken to be the size of the continental United States (4200 km), then the earth would be the size of a virus (100 nm), and a human being about the size of an atomic nucleus (10^{-14} m). If the visible universe (about 13.7 billion light years) is taken to be the size of the continental United States, then our entire galaxy shrinks to 20 m, the earth becomes much smaller than an atom, and a human being is 100,000 times smaller than an atomic nucleus. But if complexity is considered, the tables are turned! As shown in Figure 3-2, humans are by far more complex than the vast galaxies. In a sense, these observations "answer" the rhetorical question in Psalm 8:4, "What is man, that thou art mindful of him?"

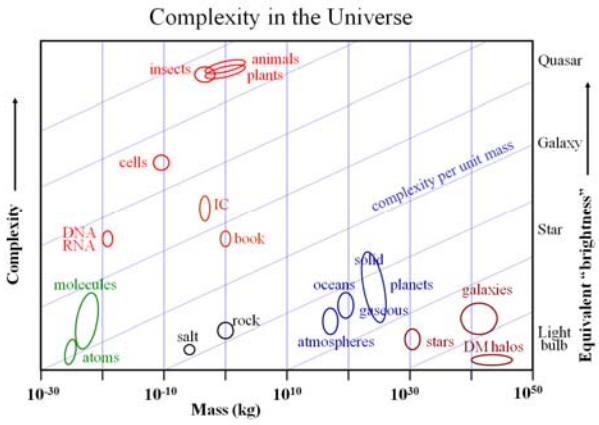

Figure 1. Complexity in the Universe.[39]

Theological demonstrations often start from the observation that if any of the fundamental forces in the universe were slightly different in strength, or the density of matter in the universe was slightly larger or smaller, the universe would either have expanded too fast for structures to form, or would have collapsed, or even matter itself as we know it could not exist. In other words, the universe appears to have been designed in a sense to allow for the emergence of intelligent life. This is usually termed the *anthropic principle*.[40] For a rigorously sound argument, an additional premise is required, something along the lines of "such coincidences/harmony/beauty could not have happened without the direction of a superior designer". Such a premise is rarely enuntiated, and in any case could never be proved; but it is clearly in the minds of those who advance the argument from design, which clearly has a great deal of persuasive power. This suggests that such arguments operate not at the strictly logical level, as do most types of cosmological proofs, but reach to a deeper level of human understanding, more akin perhaps to literature and art, which put us into contact with reality in a more profound way than purely rational arguments about prime movers or uncaused causes. From a strictly logical perspective, however, arguments from design all require a premise along the lines of "natural processes/blind chance could not by themselves account for observed complexity/organization/coincidence". It is extremely difficult to establish such a premise, because it is usually impossible to explore even theoretically all possible alternatives. For example, in the case of physical constants, while it is clear that changing one of them will make our universe impossible, it is not clear that there are not other combinations of them that could make inhabitable universes. Since there are an infinite number of such combinations, certainty about the uniqueness of our universe cannot be taken for granted (though it may be true). In the case of biological organisms, as discussed earlier, the theoret-

ical question of the "creative" power of random processes is not yet definitively resolved.

Proofs based on morality

German philosopher Immanuel Kant (1724-1804) criticized both conceptual proofs (the ontological argument) and the varieties of cosmological proof for God's existence, and his critiques of these proofs have become a mainstay of the subject. These critiques are naturally based on his own grand philosophical theories. Kant is best known in the English-speaking world for his so-called "critical philosophy." Kant proposed that all previous philosophers made the same fundamental mistake: they believed that the mind, through sense data, tells us about how things work in the world. For example, the mind learns about such things as causal relations between things, Newtonian mechanics as regulating motion, and Euclidean geometry as descriptive of objects of all sizes. Kant said no, this is just backwards: the world does not *impose* order on our sense data, our minds *synthesize* those data in accordance with various categories, which include causality.[41] This is the reason that we think things are related causally, the reason why Newtonian physics works, and the reason why mathematics—abstract knowledge—is so effective in describing what we see: the mind makes it so. This shift in the locus of causality and other characteristics of things from external things to the things our mind synthesizes is Kant's famous "Copernican Revolution".

The categories, by themselves, do not give us any knowledge of "things" in the world "except insofar as they can be applied to empirical intuition. That is to say, they serve only to make empirical knowledge possible. But this is called 'experience'."[42] We can only perceive things as being and being related in certain ways, because this is the only way that our minds can work on raw sense data. But the down side of all this is that the categories (such as causality) are *unable to give us knowledge of any realities that transcend the realm of sense*. Once again, this is because causality is ultimately the way we synthesize experience, and thus a type of order that the mind imposes on phenomena, not the other way around, as classical philosophy thought. This leads to a certain skepticism about what things are in themselves—the *Ding an sich*, in Kant's terminology, and therefore about their causal connections; thus it undermines traditional proofs of the existence of God based on causality, such as Aquinas' famous Five Ways.[43] In particular, Kant argues that we cannot know external things intimately enough to understand if there really are causal connections between them in the classical sense of strict and ineluctable determinism. Thus causality cannot be used as the basis for inferences about anything outside of our own realm of experience, and therefore cannot be generalized by any process of induction to be a truth about all reality. Hence it is not suitable as a basis for inferring God's existence based on the presumed need of every effect to have a unique, sufficient cause. Because existence in Kant's system follows upon the mind's synthesizing activities—that is, the mind must synthesize sense data into something before we can say that it exists—Kant also argued that "existence is not a predicate" in the sense of predicates such as "red" or "hot", but just a "position" in our mental picture of the world, not necessarily a reflection of something really "out there". Therefore the ontological argument fails, according to Kant, as it requires existence to be a real predicate of being, something that makes a being "greater" than it would be without that predicate. Kant's theory of mental activity leads him to propound another problem for traditional metaphysics: concepts such as "God" and "immortal soul" do not have meaning as representational concepts (concepts with which we can reason) because our mind's synthesizing activity cannot give them any such meaning. So proofs in the traditional sense, that rely on at least some meaning for these terms, as most arguments do, will necessarily fail.

Kant's theories, propounded two hun-

dred years ago, have a number of serious problems, among them the fact that they claim that Newtonian physics and Euclidean geometry work to describe our world because that is how we synthesize experience. We now know that Newtonian physics is wrong, and that non-Euclidean geometries not only exist but actually describe parts of the universe more accurately than Euclidean geometry, so Kant's entire theory of the mental life as synthesis is extremely problematic. Unfortunately a critique of Kant's philosophy is beyond the scope of this book; here we only wish to present the thrust of Kant's criticisms of traditional proofs in order to set the stage for his own unique approach.

Yet despite his criticisms of traditional proofs, Kant did not abandon the idea of demonstrating God's existence altogether, though he was compelled to take an entirely different approach. We say "demonstrating" rather than "proving" because, as we shall see, Kant did not provide—nor think it possible to provide—a "proof" along the lines of Aquinas' Five Ways, i.e., using what he terms "speculative reason" operating on concepts and knowledge gleaned from the world. This is because according to Kant, the key terms involved, such as "God" and "infinity" do not really have meaning for us; they go beyond any possible experience and so cannot be given meaning by our normal mental processes for acquiring knowledge of the world. Hence, as noted above, Kant argues that we cannot know God in the usual intellectual-based way, i.e., through causal arguments and the like, and therefore knowledge of God as envisioned by St. Thomas, Scotus, and others is simply not possible. Therefore Kant had to find a secure new basis for his demonstration. He concentrated on a key fact: we can know ourselves in a way that we cannot know the external world, and this—rather than the external route based on causality—is the real source of moral knowledge. This opens the door to a new approach, albeit one that does not yield the kind of knowledge the Medievals sought. Indeed it was Kant who first noted that *moral* truths are important in what may be termed the objective sphere. According to Kant, some truths are known through morality, in the sense that certain actions are known to be right or wrong without need for any type of causal reasoning based on natural laws or empirical observations. Morality is unconditional because it is intelligible "in itself", and man is something knowable in the fullest sense (unlike physical objects). Thus moral knowledge is more secure than knowledge of the external world. This moral knowledge is impressed on man's conscience*;* in Kant's terminology:

> …the moral law, although it gives no view, yet *gives us a fact absolutely inexplicable from any data of the sensible world*, and the whole compass of our theoretical use of reason, a fact which points to a pure world of the understanding, nay, even defines it positively and enables us to know something of it, namely, *a law*.[44] [Italics added]

This is ultimately the foundation for a demonstration of God's existence based on what, for Kant, is an incontrovertible fact, the fact of morality. However, it is not a "demonstration" in the usual sense—a point widely misunderstood. Because morality involves the performance of duty for the sake of duty, as a free act, freedom is the condition for the moral law, and as Kant's remarks above make clear, we do know that law. The existence of freedom, then, is known through speculative reason, i.e., can be demonstrated, while the immortality of the soul and the existence of God cannot.[45] But for Kant, the three notions of morality, freedom, and duty are inseparably bound together, and from them emerge, by necessity, immortality of the soul and the existence of God. Proceeding step-by-step, let us first review Kant's remarks on freedom in his *Critique of Practical Reason*:

> The concept of freedom, in so far as its reality is proved by an apodictic law of practical reason, is the keystone of the whole architecture of the

> system of pure reason and even of speculative reason. All other concepts (those of God and immortality) which, as mere ideas, are unsupported by anything in speculative reason now attach themselves to the concept of freedom and gain, with it and through it, stability and objective reality. That is, their possibility is proved by the fact that there really is freedom, for this idea is revealed by the moral law.[46]

So for Kant, morality is not some subjective feeling, as it ultimately was for Hume; it is an imperative. Specifically, it is an imperative of reason, an *objective* imperative. Hence what it requires of us, what it demands, is included in and forms part of the objective world. Since morality consists in duty, and performing duty for the sake of duty is Kant's transcendental freedom, freedom is the "keystone" of the whole of metaphysics. Why does Kant say this? Because the fact that morality is thus objective entails, *as a requirement of intelligibility*, the existence of God and the immortality of the soul.[47] Now we can understand why Kant claims this:

> The ideas of God and immortality are…not conditions of the moral law, but only conditions of the necessary object of a will which is determined by this law, this will being merely the practical use of our pure reason. Hence we cannot say that we know or understand either the reality or even the possibility of these ideas. Nevertheless, they are the conditions of applying the morally determined will to the object which is given to it a priori (the highest good). Consequently the possibility of these conditions can and *must* be assumed in this practical context without our knowing or understanding them in a theoretical sense…[48]

So practical reason does not give us any clear "vision" of God or of immortality—that we cannot have—but does assure us of their reality. This pure or speculative reason cannot do by itself. Freedom thus is what binds pure and practical reason together:

> Thus, through the concept of freedom, the ideas of God and immortality gain objective reality and legitimacy and indeed subjective necessity (as a need of pure reason)…This need is not just a hypothetical one for some *arbitrary* speculative purpose, of the kind that one must assume if he *wishes* to complete the use of reason in speculation; it is rather a need, *with the status of a law*, to assume that without which an aim cannot be achieved which one ought to set before himself invariably in all his actions.[49]

In what way are immortality and the existence of God objective reality, and how do they acquire subjective necessity?

> The immortality of the soul stems from the fact that morality, which is purely moral, could not be accomplished physically in the course of a finite life and needs an infinite life. It also stems from the fact that *the happiness of which human being is capable would not be achieved perfectly if there were no cause outside of him.* Why is this so? Here a conflict between nature and morality surfaces. What Kant tells us is that this conflict cannot exist. The postulates of practical reason, i.e., the conditions of intelligibility of the moral imperative, are the real and formal coincidence between the moral and the natural, between nature and morality. Immortality is something demanded by duty in the order of nature; God is something demanded for the achievement of happiness. Precisely because because morality is an objective imperative, these conditions of coincidence have to exist; you must, therefore you can (*Du sollst, also du kannst*). Otherwise, whence is a categorical imperative to come, if this imperative does not have an adequate objective, and one which is objectively imposed? Because of

> this, what pure reason has declared as merely possible—the transcendent—practical reason actually reaches; in this sense, at the hands of practical reason we have achieved a transcendent metaphysics, which speculative reason by itself was radically incapable of achieving.[50] [italics added]

So the fact that transcendental freedom is intelligible conceptually compels human beings to admit the immortality of the soul and God's existence in an intellectual way, not in an irrational or sentimental way. But this does not mean that the immortality of the soul and God's existence are now understood intellectually, through what Kant refers to as "representative" concepts, such as we might use for animals or physical objects. Kant argued based on his theory of the mental life that these two notions (God and immortality) cannot be understood in that way because our minds do not have the ability to synthesize sense data so as to form them, i.e., though pure reason. Attempts to do so go beyond sense experience and ultimately lead to contradictions—what Kant calls "antinomies". Why are these concepts of immortality and God constitutive and not representative, as are our other concepts, which come from speculative reason?

> Simply because here the fact is not an *object*, but something that *ought to be*; it is something in the practical order, not a fact of the representative order; that is why the concepts are not representative. …transcendental synthesis depends on the type of the given; and here the given is not a *subject*, but a *free determination*; however, it is rigorously intelligible, which means that it has intellective predicates.[51]

Nonetheless, the reality of immortality and the existence of God is assured objectively by *practical* reason. So while they cannot be apprehended by the representative concepts that pure reason utilizes, the constitutive concepts of practical reason assure us of their reality, a reality of which we are unable to make a representative concept (*uns keinen Begriff machen können*).[52] Just what are the immortality of the soul and God? What does it mean to say that they are *conditions* of the necessary object of the will? Kant calls them *conditions of intelligibility of transcendental freedom*. Zubiri notes:

> …they are not propositions that can be demonstrated; in this sense, Kant calls them *postulates*. What does Kant understand by "postulates"? They are not postulates in the sense of Euclid's parallel postulate. For sure they are propositions that cannot be demonstrated by speculative reason, but are objectively included and required in that of which they are postulates, i.e., in the very intelligibility of freedom; they are objective exigencies of freedom.[53]

There remains the issue of causality, which Kant rejected as a basis for speculation about God and the soul in his *Critique of Pure Reason*. Causality is necessary for any significant moral theory; if no one *causes* anything to happen, no one can have any responsibility either. Kant is explicit about the need for causality in the moral context:

> In the concept of a will…the concept of causality is already contained; thus in that of a pure will there is the concept of causality with freedom, i.e., of a causality not determinable according to natural laws and consequently not susceptible to any empirical intuition as proof…[54]

Speculative reason recognized causality, and indeed made it one of the categories. But Kant, heavily influenced by Hume, would not grant to causality any objective reality in the traditional sense. Rather, it is restricted to temporal determination. But in the case of practical reason, the situation changes, because we now have strict causality in the intelligible world:

> Because of this, what for pure reason was a possibility, for practical reason is an objective reality. Why? Because

> practical reason has a fact completely absent in theoretical reason, i.e., the absolute fact of morality, the fact of the will. As a determination of the will in and by itself, this determination is duty for the sake of duty. Morality exists only when something is done because it should be done, independently of any other empirical consideration: duty for the sake of duty. Consequently the self-determination of the will, which involves the formula of duty for the sake of duty, consists purely and simply in freedom. In other words, freedom, for Kant, is not the decision to break or change some temporal succession, but of now being determined to myself and by myself in the intelligible order; it is a *transcendental freedom.*[55]

Summary of Kant's "demonstration" of the existence of God

The moral law—duty for the sake of duty—is an objective imperative that requires the notion of transcendental freedom. What is "duty" is determined by the categorical imperative. Morality itself cannot be attained in a finite life, and man's own happiness requires something outside of himself as guarantee. So immortality of the soul and the existence of God are two *conditions* for the existence of morality as an objective imperative. We do not understand immortality and the existence of God as representative concepts, and therefore cannot use them in logical arguments; but through the concept of freedom we know that they have objective reality.

It is important to understand the real nature of Kant's argument, because it is widely misunderstood and misrepresented. The usual argument employed in morality-based proofs for the existence of God goes as follows:[56]

1. Morality would not be a rational enterprise if there were no moral order in the world.
2. Only the existence of God traditionally conceived could support the hypothesis that there is a moral order in the world.
3. Therefore, there is a God.

Kant's argument is sometimes put into the form of a logical deduction in the following way:[57]

1. It is rationally and morally necessary to attain the perfect good (happiness arising out of complete virtue).
2. What we are obliged to attain, it must be possible for us to attain.
3. Attaining the perfect good is only possible if natural order and causality are part of an overarching moral order and causality.
4. Moral order and causality are only possible if we postulate a God as their source

However, as we have seen, this is not really the thrust of Kant's demonstration, since this schematized version runs along the lines of demonstrations that treat God and immortality as common or representative concepts—something they are not in his philosophy. The real flow for Kant's demonstration is morality, duty, transcendental freedom, and the implication of immortality of the soul and God's existence, as realities which are indeed real but not knowable as representative concepts. However, as noted above, immortality of the soul and God's existence emerge as intrinsic requirements of intelligibility from the objectivity of morality. They are not "demonstrated" or "proved" in a formal sense. Nor do they become concepts in the way envisioned by this schematization.

As a result, any critique of Kant's proof must center on his philosophy as a whole, and in particular, his theory of the mental life. If his conception of knowledge as the result of synthesis of sense data according to his categories is incorrect, then much of the rest of his philosophy goes down with it. There is considerable reason to doubt Kant's system. On the one hand, it is clear that his ideas about synthesis of sense data in accordance with

Euclidean geometry and Newtonian physics is just plain wrong: there are other geometries besides Euclidean, and Newton's laws are only an approximation to more accurate descriptions of nature. We now understand much more about nature and physical reality than Kant, and also realize much more about how mathematics and theories interact to produce that knowledge. On the other hand, Kant's view that we cannot have direct experience of reality, but can only have it as mediated by the synthesis activity of the mind, is also wrong. Kant was ultimately a prisoner of empiricism, the belief that we are given only sense data, from which we must construct reality using reason. As Zubiri has pointed out, rational knowledge—the only kind Kant considered—is the last, not the first stage of human knowing. The first stage puts us into direct contact with reality, and it is on that foundation that the second stage (logos) and the third stage (reason) can be erected. In effect, Kant missed a large part of human knowing. Nonetheless he had some valuable ideas about the importance of our knowledge of morality and causality.

Proofs based on direct human experience

Zubiri reflected on this situation—endless argument about causality, predicates, perfection, conception and so forth—and realized that we must step back from these controversies and reexamine the whole enterprise, especially before embarking upon something as complicated and far-reaching as a proof of God's existence. In particular, Zubiri believes that three crucial assumptions have been made in the past, but never really examined critically or even recognized in an explicit way. First is the notion that God is some type of reality *object*—different perhaps than rocks, animals, stars, and so forth, but still an object whose existence is to be proved or demonstrated, like that of any other object. Second, all proposed proofs and demonstrations have operated at the level of reason, that is, they are based on "arguments" that make use of some more-or-less complex chain of reasoning. Third, it is usually assumed that we can immediately reach the notion of "God" and know what we are talking about. For Zubiri, all of these assumptions are wrong. God is not a reality *object*—objects are what form our world of finite intelligence—but a reality *ground*. This will be discussed below. The second assumption reflects a seriously confused view of human knowing. We shall address this assumption first. The third assumption does not reflect the way our knowledge of God proceeds. This will also be discussed below.

Human Knowing and Proofs. While both both Hume and Kant attempted an examination of human knowing, both ultimately failed. According to Zubiri, they failed because they sought our direct or at least most important contact with reality through "higher" reasoning processes, through knowledge such as science. Zubiri observed that our process of knowing actually involves three steps that unfold logically if not chronologically in the following sequence, which constitutes the core of Zubiri's theory of human knowing, called *Sentient Intelligence*:

- Primordial apprehension of reality (or basic, direct installation in reality, giving us pure and simple reality)
- Logos (explanation of what something is *vis à vis* other things, or what the real of primordial apprehension is in reality)
- Reason (or *ratio*, methodological explanation of what things are and why they are, as in done in science, for example)

Our most direct contact with reality is not by any reasoning process, but directly in the first phase of sentient intelligence, what Zubiri refers to as *primordial apprehension of reality.* In contrast, for Aristotle, St. Thomas, and most of the Western philosophical tradition, knowledge *par excellence* was rational knowledge,

knowledge at the third level. For them it is reason which puts us into whatever contact we have with reality. This belief Zubiri terms "logification of knowing". For Zubiri, rational knowledge is extremely important but cannot be the basis for knowledge in general, as it is a derivative form of knowledge. In consequence, Zubiri does not construct "rational" proofs of the existence of God for two reasons: (1) such proofs, based as they are on *ratio* or higher reasoning (such as that about causality or act and potency), being at the third level of human understanding are *eo ipso* far removed from the most certain level, the first (primordial apprehension of reality), and thus cannot have the level of confidence claimed for them. Any "proof" needs to be based on a more incontrovertible foundation. (2) St. Thomas' proofs and most other cosmological proofs require difficult metaphysical notions such as causality in the classical sense, notions which are not suited as a premise in the universal sense required for the proofs to work. This is because the universality of causality in the strong, deterministic sense required for St. Thomas' proofs and most other cosmological proofs is never actually verified, only inferred from limited human experience. Except in the case of some human affairs, we cannot actually perceive the influence of one thing on another, only draw inferences. In any practical case, the causal nexus is too complicated. Ordinary knowledge of the world only requires functionality—a much weaker notion than classical causality, making the latter poorly suited as a base for proofs of God's existence. Moreover, much of our knowledge stems from methods that do not involve causality at all.

Steps in knowledge of God. Just as human knowledge itself, and our contact with reality, are based on the three phases of human understanding, so any effort to know or prove anything about divinity must likewise proceed appropriately. And attempting to do so first at the level of reason, of *ratio*, is akin to trying to learn to run before learning to walk, as discussed above. This is the fundamental error of virtually all earlier efforts to prove God's existence: they started at the level of reason when they should have started at the level of primordial apprehension. But just what does this mean? It means that we must begin with our most basic experiences of the world, and those that are relevant are our experience of the *power of the real*, the *nature of the human person*, and what Zubiri calls *relegation*. All of these are grounded in our primordial apprehension of reality. Understanding how they fit together is key to a more grounded approach to the whole question of proving God's existence.

We begin with a discussion of the power of the real. Things not only act "in their own right" [*de suyo*] on others, but also have, *de suyo*, a certain dominant *power* over them. As part of the *de suyo*, power in the sense of power of the real, like causality in some of its meanings, is apprehended in primordial apprehension. It is a pivotal aspect of our direct contact with reality, both because of its link to religation, its role in compelling us to make ourselves as persons, and its bearing of some of the traditional meanings and functions of causality. This "power of the real" or "force of things" or "force of reality" has long been recognized and reappears throughout history in various guises. Among them, there is the *moira* or idea of destiny in Greek literature. *Nature* is often regarded as the manifestation of the power of the real, especially when we are confronted with our inability to control it. The power of the real also affects us though things that are real by postulation, such as political entities. Today it is a scientific *law* that expresses some type of necessity or force in natural things, though the type and character of the law may vary, and its expression in mathematical terms is given by a functional relation.[58] The power of the real finds application in natural theology, because it pertains to real things.[59] Zubiri notes:

> …In what measure does this power pertain to reality? Reality, by the mere fact of being real, has a capacity to

> dominate us in the manner I just described. That is an incontrovertible fact, and not a theory. Hence, at no level is this capacity —by virtue of which a reality (not reality itself, but any ordinary reality) makes sense to man— independent of the properties which reality possesses. Obviously: if I wish to fabricate a door, I cannot make it out of liquid water, which has no capacity to be a door. The capacity which a real thing has to be constituted into any meaning, is precisely what in this context, not in others, I call *condition.* And thus, reality *qua* reality comprises that condition which affects it, and only by virtue of which can it be dominant in the form I have just described. If causality strictly speaking is the functionality of the real *qua* real, condition is the capacity of the real to have meaning, and consequently belongs to the real thing. Power is the dominating condition of the real *qua* real, in contradistinction to causality which is the functionality of the real *qua* real. And precisely because it pertains and belongs to reality in itself *qua* real, it is something which affects not only the attitude of man, but the very structure of things *qua* real.[60]

This leads immediately to the notion of the deity:

> …to this ultimate, possibilitating, imposing power I give the name *deity*. Deity is not God. I call it "deity" because of two reasons; because it will be the way that will take us to God, and also because in the end man has always sensed as power of deity that universal and dominating characteristic that reality *qua* reality has over him, and over all real things. Deity is not something different from the world, and real things. It is rather that condition which real things have, by the mere fact of being real, of some having dominion over others, and all of them over man, and man over the rest of them: this is reality in its condition as power.[61]

Thus our first experience is a vague but forceful notion of the power of the real, the recognition that we cannot do anything we like but are constrained by something outside of and greater than ourselves. So our first, primordial apprehension is that of *deity*, not God.

Religation and reality ground. However this power of the real directly affects us—it is not just an abstract concept. This is because each person is, in his very constitution, turned toward a reality which is more than he is, and on which he is based. This reality is that from which emerge the resources he needs to make his personality, and which supplies him with the force necessary to carry out this process of realizing himself. This turning of a person to reality is what Zubiri terms "religation". It is a turning toward some ground not found among things immediately given, something which must be sought beyond what is given. The theist calls this ground 'God'. So the ultimate source of theological knowledge is direct human experience, given in primordial apprehension, not abstract reasoning at the level of reason. This is not direct human experience of God, as in a mystical vision (though that is not excluded), but rather our direct experience of a power outside of us, which provides us with essential resources to realize our lives:

> Natural Theology has generally approached God in a conceptual way, making of Him what Zubiri calls a "reality-object" and concentrating all its efforts in establishing ways of "demonstrating" His existence.…[O]n the contrary, God, if He is something, is not a "reality-object", but what he called "reality-ground", a ground to which, if it exists, we will be "religated" (religados), that is, reconnected. In contrast to the demonstrative ways, purely idealistic, Zubiri proposes the way of religation, for him the only one truly real.[62]

In Zubiri's view, we are religated to reality, because reality imposes itself on us in an especially forceful tripartite way, as ultimate, possibility-making, and impelling:

> The experience of this imposition, of this power of the real which is a fact, is…the experience of the ground of reality, the fundamental experience which each man possesses as a theist, an agnostic or an atheist. The divergences begin at the time of intellectual discernment and volition when confronting this ground. For the theist, the experience of the ground is an experience of God, a God which is not transcendent "to" things, but transcendent "in" things. To reach God it is not necessary to leave the world, but to enter more into it, reaching its foundation or ground. God is at the bottom of things as their ground; and in his experience of things man has the fundamental experience of God. The life of man is woven into his experience with and of things; and as this experience is in itself an experience of God, it turns out that the life of each man is in some way a continuous experience of God. This means that the real God of each person is not a concept or the result of reasoning, but the very life of man.[63]

Our understanding of God consequently changes in some ways from the traditional understanding. God is not a prime mover, first cause, or a superphysicist who rules universe by physical laws. Nor is He a concept, or terminus of a reasoning process, or a reality object. Rather, our fundamental experience in primordial apprehension is of God as a *reality ground*, something more immanent. This means that the separation of man and God, the traditional starting place for Western theological thought, is in some ways incorrect or at least inadequate:

> …there is a human dimension formally and constitutively involving the problem of divine reality, of the *Theos*. The theologic is such by involving the dimension that opens onto the divine. The theologic is, consequently, a strictly human structure accessible to immediate analysis…The clarification of that dimension is the true proof that the problem of God is a problem. The problem of God, *qua* problem, is not one arbitrarily posed by human curiosity; indeed, *it is human reality itself in its constitutive problematic quality*.[64] [italics added]

Thus far, then, for Zubiri the progression in thought is not directly to God, but involves three steps: Deity—divine reality—God. One cannot reach God directly by means of rational proofs, but there is a dimension of human beings that is connected to the divine in primordial apprehension, the surest contact with reality. But it does not give us knowledge of God as perfect, infinite, self-existent, or characterized by other high-level predicates. Rational investigations of God and God's characteristics, such as appear in part I of St. Thomas' *Summa Theologica*, are derivative in nature and require the grounding of the first two steps. Zubiri notes, "A person is not simply linked to things or dependent upon them, but is constitutively and formally religated to the power of the real."[65] This power of the real *eo ipso* constitutes the very ground of personal life. Religation is not mere *linking* or *sentiment of dependence*, but the constitutive and formal turning towards the power of the real as ground of my personal life. This means that religation is a fact, first and foremost, and the key fact on which my life, my living, consists:

> …religation is something precisely and fundamentally affecting the whole of my human reality, from my most modest physical characteristic to the most elevated "spiritual" traits. What is religated to the power of the real is not one aspect or another of my reality, but my own personal reality in all its dimensions, because it is in accordance with all of them that I make myself a person. Therefore religation is a fact, indeed an integral *total* fact,

> Finally, religation is something basic and radical. Religation is the very root of my personal reality. Not only is it verifiable and complete, but above all a radical fact. Therefore, religation is not one function among a thousand others of human life, but the root from which each life may become, physically and really, not only an I, but my I..[66]

Religation is not a relation between humans and things, but rather the respective structure, the framework, in which the power of the real occurs.

> The power of the real is the power of each thing *qua* reality, be it cosmic or human. My own substantive reality is enclosed by the power of the real. From this it follows that religation is not something human in contradistinction to the cosmic, but the very occurrence of all reality in human beings and of human beings in reality. Religation is at one and the same time and in a radical sense, something human and cosmic.[67]

So given that we experience the power of the real through primordial apprehension, that we are in direct contact with this aspect of reality, and furthermore that religation expresses our turning toward the power of the real, does this lead to God? It points to God in a threefold manner, but is not yet a demonstration:[68]

1. God has to be the ground of the power of the real. Therefore, he is *eo ipso* an ultimate ground, possibilitating and impelling. If, by way of religation, we reach God, we shall have then reached a God qua God.
2. This God has to be a supreme reality, but not a supreme being.
3. [God] will be a reality that is the ground of my relative absolute being. Therefore, He will be an absolute reality, not in His own mode, but *simpliciter*; a reality which is fully real and absolute, not "confronting" reality as such, but "in and by itself" *qua* real. This is what I shall call "absolutely absolute reality"…"supreme" means "absolutely absolute". And this would be, if it exists, divine reality.

So we have the following summary of the argument thus far:

> The way of religation to the power of the real is then an experience that sketches the figure of a God before my eyes as absolutely absolute reality, highest reality, possibilitating and impelling, which is the ground of the power of the real. Such would be the point of arrival of our way: not only God, but God *qua* God.[69]

But this is not yet a proof; an atheist or an agnostic can still claim that this power we experience, while having all the aforementioned characteristics, is merely "mother nature" or an expression of our evolutionary roots. Indeed, *nature* is often deified, if only metaphorically. The final step is to note that the power of the real is itself grounded in certain properties that the thing, which exhibits the power, must have. But, this power of the real is ultimately grounded on the constitution of reality itself, not specific, concrete real things. That is, all things are real, but none of them is reality as a whole, none is reality itself. But

> …reality itself is real because it determines me physically, making me be relatively absolute. Therefore, there is another reality on which reality itself is grounded. And this reality is not one more concrete thing, because it is not "a" reality but the ground of reality itself. And as ground of a power determining my relatively absolute being, *it must be an absolutely absolute reality*. This is just what the reality of God is. *Only because this reality exists can there be a power of the real determining me in my relative absolute being.*[70] [italics added]

As we have seen, we find this power of the real in the reality of each individual, concrete thing. Since this power must be

grounded on an absolutely absolute reality, i.e., the reality of God, it follows that God is present in things *formally*, constituting them as real, as real things. Hence the reality of each thing is itself constituted "in God."[71] So God is not in each real thing as some sort of addition to it, but is there in a formal way. Hence every real thing is, intrinsically, ambivalent: it has its own irreducible reality, its power; but it is constituted, formally, in the absolutely absolute reality, God. This means that without God in each thing, in this formal way, it would not be real. Thus each thing is both "its own" reality *and at the same time* a presence of reality itself—the reason why the power of the real is in it and manifest to us. Therefore God exists, and is the ground of both the reality of each thing and source of the power of the real in it.

The four steps in the argument can now be summarized:[72]

1. Through primordial apprehension, we know that each human being, as such, has life as a person. That life consists in self-possession, self-actualization, which, through religation, making its own *I*, making its own being. This type of being is absolute but an acquired absolute—we do not make ourselves from nothing. So it is therefore a *relatively absolute* being.

2. Also through primordial apprehension we understand this absolute being as something acquired by the physical determination of the power of the real as something ultimate, possibilitating, and impelling, which allows us to carry out the process of making ourselves, while at the same time manifesting to us something about reality. This indicates that there is something transcendent about reality, which is not yet God.

3. But this power of the real goes beyond the power of each individual real thing; it is "more" than that power, thus indicating that we cannot stop here.

4. The power of the real must itself be grounded in something, and that "something" is the nature of reality itself. That is, this power of the real is grounded on an *absolutely absolute reality*, which is distinct from real things. This reality, which thus formally constitutes things as real things, is God.

Thus by the constituting presence of God in each thing, and at the same time the presence of each thing in God, does the power through and by which I live become possible. This is the power through and by which I make my absolute *I*; through and by which I make my life, I create my life, with things. Without them, naturally, I would not be able to live. So:

> …what I do with them, I do thanks to the fact that they are constituted as real in God. Without God as a formally constitutive moment of the reality of things they would lack their primary and radical condition of being determinants of my being, simply because they would not be "reality". And conversely, only by being real do they have that power, and they are real only be being so in God. Thanks to this, my being is grounded in God insofar as He is constitutively present in a formal way in what things have of reality. Real things, through their power of the real, give me God in their very reality when they give me their reality. *To justify the existence of God is simply to explain the truth of this phrase.*[73] [italics added]

But this argument is not a speculative argument along the lines of the various cosmological proofs, or a chain of reasoning with strict logical rigor. It is an intellective knowing of the true course of religation in our lives. Indeed, it is something whose force only becomes apparent through the progression of one's life. Any discussion of proofs of God's existence must look first at the fundamental nature of human person, a knowledge based more on primordial apprehension of reality.

This is because our knowledge of human person much better than that of things of world—on this point, at least, Kant had the right idea. The person is, in his very constitution, turned toward a reality which is more than he is, and on which he is based. This reality is that from which emerge the resources he needs to make his personality, and which supplies him with the force necessary to carry out this process of realizing himself. This turning of a person to reality is *religation*. It is a turning toward some ground not found among things immediately given, something which must be sought beyond what is given. The theist calls this ground 'God'. Thus the progression in our knowledge of God's existence is not the cosmological route:

Fact about the world $\overset{\text{rational reasoning process}}{\Longrightarrow}$ God as first cause, prime mover, etc.

Rather, the progression is:

Power of the real $\overset{\text{primordial apprehension}}{\Longrightarrow}$ Religation $\overset{\text{primordial apprehension}}{\Longrightarrow}$ Deity $\overset{\text{logos, reason}}{\Longrightarrow}$ God as reality ground

Thus the proof, which is not a strictly deductive argument, but one that makes us look into ourselves at a deep level, ends up with a God whom we can worship and to whom prayers can be made, not an unmoved mover.

Proofs based on inference to the best explanation.

Inference to the best explanation is a commonly employed tool in many areas of study, including science, history, and philosophy. The basic idea behind it is simple: when one considers the range of possible explanations for some phenomenon or set of phenomena, one explanation emerges as significantly better than the others—better in the sense that it gives a more plausible explanation, covers a wider range of phenomena, relies less on *ad hoc* hypotheses, is simpler, is more elegant, or some combination of these. The result is not certainty, but varying degrees of probability. Inference to the best explanation is the idea behind Sherlock Holmes' famous dictum, "when you have eliminated the impossible, whatever remains, however improbable, must be the truth".

Consider the following example: in the United States, one can purchase "vanity" license plates, which may contain words. Imagine that you walk down the street and see that the license plates on eight successive cars spell out Hamlet's famous speech, "Oh that", "this too" "too solid" "flesh" "would melt" "and resolve" "itself" "into a dew". Now, there are several possible explanations, among them: (1) it could just be a grand coincidence; (2) the license plates were covered over by someone with cardboard sheets containing the words as some sort of a prank; (3) the cars belong to members of a Shakespeare club or other organization. Few people would accept (1); the coincidence is just too great. A quick inspection might rule out (2), which most people would reject anyway because tampering with license plates is very unusual. This leaves (3) as the best explanation. It is not certain, but has a high degree of probability, which is all that this type of argument can provide.

In a similar way, one can examine the world and conclude that the existence and perhaps benevolence of God is the best explanation for things such as widespread

belief in God, order and beauty in the universe, self-denial on the part of Christians or other religious believers, existence of monasteries, beautiful churches, and miracles, just to give a few examples. The argument is especially telling with cases of extraordinary coincidence, such as that involving the physical constants responsible for the structure of matter, including the speed of light *c*, the fundamental electric charge *q*, Planck's constant *h*, the gravity constant *G*, and several others. What is remarkable about this coincidence is that were even one of these slightly different than it is, the universe as we know it would disappear. This coincidence is the basis of the *anthropic principle*, discussed above in connection with arguments from design. In fact there is some overlap between the argument from design and inference to the best explanation; but the inference to best explanation does not have to rely on perceived design. As we have seen, coincidence or beauty will also do quite well. For example, with respect to the origin of life, many have looked at the extraordinary coincidences necessary for a self-replicating entity to emerge spontaneously from an organic "soup", and concluded that the odds against it are so astronomical that it could never have occurred spontaneously, involving as it does many complex proteins that would have to form and come together under just the right conditions.[74] Despite the fact that they do not yield absolute certainty, such "proofs" can be very useful and quite influential for certain people who are open to supernatural explanations and who deeply perceive beauty, order, and other such experiences of daily life.

Along these same lines, one could also cite the increasing reliance of modern physics on symmetries in nature. Indeed, symmetry principles are often used not only to justify theories or to formulate them, but as a tool for discovery of new particles. The current "standard model" of high-energy physics is heavily indebted to symmetry, and formulated in terms of it.[75] The great symmetries of nature point to design as perhaps the best explanation.

Scientifically-based cosmological proofs

Another area where inference to the best explanation comes into play is scientifically-based cosmological proofs. Recently arguments for the existence of God have been advanced based on scientific developments, especially in the area of cosmology.[76] The primary finding of cosmologists over the past 80 years or so has been evidence for the Big Bang theory of the origin of the universe. In particular, the discovery that the universe is expanding (galaxies moving away from each other at high speed) has a particular implication:

> If all galaxies are rushing away from each other now presumably they must have been closer in the past. Unless there was some new physics involved, extrapolating back in time there would be a moment, "the big bang", when all objects were concentrated at one point of infinite density.[77]

According to the Big Bang theory, the universe began in an unimaginably violent event about 13.7 billion years ago, starting from a "singularity"—a point in time when matter was so densely packed in such a small volume ("infinite density") that the laws of physics, as we know them, cease to apply. Cosmologists do not attempt to understand the singularity, but instead focus their attention on the ensuing events. Evidence for the Big Bang theory is fairly compelling, and includes the observed Cosmic Microwave Background (CMB) radiation and the measured expansion of the universe. The notion of the Big Bang immediately suggests the question, "What caused the Big Bang?" Thus the new scientifically-based proofs argue from the fact of the Big Bang to the need for something to create the initial singularity from which the universe as we know it emerged. This creation is assumed to be *ex nihilo*, in order for the proof to work. The implication, of course, is that something non-contingent had to be responsible for what was a contingent event, the origin of our universe. It is thus akin to

Aquinas' Third Way, discussed above. The existence of God, as agent, would be the best explanation of the Big Bang.

The soundness of the proof depends perforce on the certainty of the scientific theory on which it is based, and this is always the risk with use of science as a basis for proofs of the existence of God. Cosmology is still a somewhat speculative venture, though the fact of the Big Bang is not seriously questioned outside of Creationist circles. Still it is a theory, not as well established as others such as relativity or quantum mechanics. Some have even argued for a cyclic view of cosmic history, wherein the Big Bang as we know it is just the latest installment (though there is no evidence for this). Others have argued for a "multiverse"—a theory in which our universe, with its Big Bang, is just one of many. Again, there is no evidence for this theory. Overall it would appear that the premises of the argument based on the Big Bang are reasonably well established, though not absolutely certain.

Another area where some have found fertile ground for a scientifically-based proof is evolution, or specifically, the Intelligent Design theory of evolution. Now it is important to realize that Intelligent Design itself is actually a scientific theory, which looks at the question of whether the mechanisms proposed by standard evolution theories (random mutation and natural selection) are in fact capable of generating the degree of complexity we observe in organisms. This is a scientific, not a religious question.[78] But if the Intelligent Design school is correct, and the mechanisms are inadequate, then the inference is that some external agent must have somehow caused the otherwise impossible transitions. That is, the best explanation is that God was responsible in some way for what we observe. The Intelligent Design theory is, however, much more controversial than the Big Bang theory, so the value of such a proof is correspondingly less.

Though these scientifically-based proofs are cosmological proofs in the sense that they start from some fact about the world, they belong here because the provisional nature of most science means that absolute certainty cannot be claimed for them. This is an important point, so we shall expand upon it briefly. Science has taught us some things about the world that are as incontrovertible as anything that we know about it, such as the heliocentric theory, the existence of atoms, and the periodic table. The scientific proofs, however, are not based on these findings of science, but on much more speculative areas such as cosmology and evolution, limiting their certainty. It is possible but not extremely likely that this will change in the foreseeable future; so for now these proofs must be considered as delivering probable but not certain conclusions.

Summary

Proofs of the existence of God fall into five main categories: conceptual, cosmological, morality-based, experiential, and inference to the best explanation. (1) Conceptual or *a priori* proofs attempt to prove God's existence based solely on our concept of God, with strict logical rigor. The best-known of such proofs is the *ontological argument* first propounded by St. Anselm, and later taken up by Descartes, Leibniz, Hegel, and even Gödel. The main problem with these proofs is that they confuse the way we are constrained to think about reality with how reality actually is. So just because we *think* of something as existing, the thing in question does not necessarily have to exist. (2) Cosmological or *a posteriori* proofs start with some fact or presumed fact about the world, and then proceed by generalization or induction to make it a universal truth, on the basis of which a rigorous logical inference to the existence of a supreme being can be made. Most commonly *causality* or *contingency* is the fact chosen. For example, "every event has a cause" is taken to be universally true, and then the need for an Uncaused Cause or Prime Mover is deduced. There are two major problems with cosmological proofs. First, they depend upon the universal truth of the selected statement, which can rarely be estab-

lished. The progression of knowledge, especially in science, has allowed us to experience reality in ways far removed from daily life, and has revealed that what appears to be true at that level can be false at high speeds, small distances, or large sizes. We now know, for instance, that there are events at the quantum level that are "uncaused", such as "virtual particles". As a result, cosmological proofs suffer from an unease about the required universality of their premises. Second, there is the difficulty of getting from the supreme being they seek to prove to the God that we actually worship and want others to accept. (3) Proofs based on morality move closer to direct human experience. Their basic premise is that if morality exists, if there is such a thing as moral behavior, then some agent—God—must exist to guarantee the whole edifice. Kant's proof is probably the best-known, but it requires his notion of *duty* as the foundation of morality, followed by a rather difficult argument to reach the notions of eternal life and the existence of God. Again the proofs purport to be strictly logical and arrive at God as a reality object. (4) Experiential proofs do not seek the type of logical necessity involved in the other three types of proofs, especially since it leads to a rather sterile conclusion in addition to the problems of establishing the required premises. Rather, they start from aspects of human life, specifically our basic perception of the power of the real, and build on it. That is, they do not attempt to utilize unverifiable metaphysical principles such as "every event has a cause", but are based on our directly experienced notion of dependence on something outside of ourselves to make our lives, something ultimate, possibilitating, and impelling. This experience is that of *religation*. Through it, we recognize the need to acknowledge something that is not yet God, but "Deity". Then we recognize (at a higher level) the necessity of the power of the real to be grounded on something outside of itself. This is God, who is thus a *reality ground*, not a *reality object*. (5) Proofs based on inference from the best explanation, unlike those in the other categories, do not aim for certitude but just a high probability, in this case that God's existence is the best explanation of some phenomenon or set of phenomena or facts. Most arguments utilizing scientific theories fall into this category, as do arguments based on beauty and order in nature. The various classes of proof are summarized in Table 1.

Type of proof	***Basis***	***Method***	***Typical Variants***	***Certitude sought***
Conceptual	Concept of God	Basically deduction	Ontological argument; Augustine's argument on necessary and immutable truths; Scotus' argument from *ens infinitum*	Absolute (probable for Scotus)
Cosmological	Fact(s) about world	Basically deduction; induction for some premises	Aquinas' Five Ways; Avicenna's argument on contingent and necessary truths; Scotus' *a posteriori* proof.	Absolute
Morality-based	Fact of morality	Basically deduction	Kant's argument based on intelligibility	Absolute
Experiential	Experience of religation	Basically deduction	Zubiri's argument from our experience of the power of the real	Absolute
Inference to best explanation	Beauty; order; scientific theory	Inference	Arguments from order or beauty in nature; arguments from Big Bang or failure of Dawinian theory	High probability

Table 1. Summary of Types of Arguments for Existence of God

Notes

[1] The text of this article will appear in a revised from in a forthcoming book on Zubiri's theology, co-written by several Zubiri scholars.

[2] St. Athansius of Alexandria, *De Incarnatione*, 54, 3.

[3] St. John Damascene, *De Fide Orthodoxia*, i, 1, 3.

[4] Augustine, *Confessions*, 1, 11, 17.

[5] Augustine, *Confessions,* 8, 5, 10.

[6] Proofs such as this, based on particular aspects of human experience, are sometimes termed "anthropological proofs".

[7] Descartes, Meditation 10.

[8] *Summa Theologica*, I, q2, a1, translation by Fathers of the English Dominican Province, 1920, available at http://www.newadvent.org/summa/1002.htm.

[9] Francisco Muñiz, O.P., Introduction to question 2 in volume I of the bilingual edition (Spanish/Latin) of the *Summa Theologica* published by the Biblioteca de Autores Cristianos, 3rd edition, Madrid, 1964, p. 288.

[10] David Hume, *Treatise on Human Nature*, I, 4, 2, 39; I, 4, 6, 3.

[11] Scotus, *Reportata Parisiensia*, 1, 2, 3, no. 8; Frederick Copleston, *A History of Philosophy*, vol. 2, *Medieval Philosophy*, Part II, Garden City, New York: Image Books, 1962, p. 249-250.

[12] Duns Scotus, *Philosophical Writings*, translated by Allan Wolter, Library of Liberal Arts, Indianapolis: Bobbs-Merrill, 1978, p. 77.

[13] *Ibid.*, p. 78.

[14] Kurt Gödel, "Ontological Proof". *Collected Works: Unpublished Essays & Lectures, Volume III.* New York: Oxford University Press, 1995, p. 403-404.

[15] Miguel Cruz Hernández, *Historia del pensamiento en el mundo islámico, vol. 2, El pensamiento de al- Ándalus (siglos IX-XIV),* Madrid: Alianza Editorial, 1996, p. 463.

[16] Article on Avicenna in *Internet Encyclopedia of Philosophy*, http://www.iep.utm.edu/avicenna/.

[17] L. E. Goodman, *Avicenna*, London: Routledge, 1992, p. 64.

[18] *Summa Theologica*, I, q2, a3.

[19] Meehan, p. 187.

[20] Source: User Acdx, http://en.wikipedia.org/wiki/Relativity_of_simultaneity.

[21] Is. 55:8, NIV.

[22] Thomas B. Fowler, "Causality and Power in the Philosophy of Xavier Zubiri", *The Xavier Zubiri Review*, Vol. 2 (1999), p. 83-102.

[23] Thomas B. Fowler, "The Scientific Status of Intelligent Design", *Faith & Reason* 31:4 (2006), pp. 503-538.

[24] Thomas Fowler and Daniel Kuebler, *The Evolution Controversy: A Survey of Competing Theories*, Grand Rapids: Baker Academic, 2007.

[25] *Routledge Encyclopedia of Philosophy*, Vol. 7, Taylor and Francis, 1998, p. 160.

[26] This discussion follows the *Routledge Encyclopedia* article, cited above.

[27] Duns Scotus, *Philosophical Writings*, tr. by Allan Wolter, Library of Liberal Arts, Indianapolis: Bobbs-Merrill, 1962, p. 43.

[28] *Ibid.*, p. 66.

[29] *Ibid.*, p. 72.

[30] *Ibid.*, p. 80.

[31] Zubiri, *Man and God*, tr. by Thomas Fowler, Joaquin Redondo, and Nelson Orringer. Lanham, MD: University Press of America, 2009, p. 96.

[32] *Ibid.*

[33] Xenophon, *Memorabilia*, Book 1, Chapter 4, Line 6.

[34] Cicero, *De Natura Deorum*, ii. 34. Text at http://thriceholy.net/Texts/Memorabilia.html.

[35] See Fowler, T., and Kuebler, D., *The Evolution Controversy: A Survey of Competing Theories*, Grand Rapids: Baker Academic, 2007.

[36] Eugene Wigner, "The Unreasonable Effectiveness of Mathematics in the Natural Sciences", *Communications in Pure and Applied Mathematics*, vol. 13, No. I (February 1960)

[37] Peter Ward, Donald Brownlee, *Rare Earth: Why Complex Life is Uncommon in the Universe*, New York: Springer, 2003.

[38] Michael Rowan-Robinson, *Nine Numbers of the Cosmos*, New York: Oxford University Press, 1999.

[39] Source: Professor Mark Whittle, University of Virginia. Used by permission.

[40] Barrow, John, and Tipler, Frank, *The Cosmic Anthropic Principle*, Oxford: Oxford University Press, 1986.

[41] Kant, Immanual, *Critique of Pure Reason*, Book I, Chapter I, Sec. 3, B95.

[42] Kant, Immanuel, *Critique of Pure Reason*, B147.

[43] Aquinas, *Summa Theologica*, I Q2 A3.

[44] Kant, Immanuel, *Critique of Practical Reason*, tr. by Thomas Kingsmill Abbott, First Part, Book I, Chapter I, text available at http://www.knuten.liu.se/~bjoch509/works/kant/cr_pract_reason.txt.

[45] Xavier Zubiri, *Fundamental Problems of Western Metaphysics*, tr. by Joaquin Redondo and Thomas Fowler, Lanham, MD: University Press of America, 2009, p. 156.

[46] Kant, *Critique of Practical Reason*, tr. by Lewis White Beck, Indianapolis: Library of Liberal Arts, 1956, p. 3. For the standard German edition published by the Prussian Academy, the *Kritik der praktischen Vernunft* is volume 5, and the quoted text is pp. 3-4.

[47] Xavier Zubiri, *Fundamental Problems of Western Metaphysics*, p. 156-157.

[48] Kant, *Critique of Practical Reason*, p. 4; German p. 4.

[49] Kant, *Critique of Practical Reason*, p. 4-5; German p. 4-5.

[50] Xavier Zubiri, *Fundamental Problems of Western Metaphysics*, p. 157.

[51] Xavier Zubiri, *Fundamental Problems of Western Metaphysics*, p. 158.

[52] Xavier Zubiri, *Fundamental Problems of Western Metaphysics,* p. 158. [quote probably from *Träume eines Geistersehers, erläuter durch Träume der Metaphysik*, 1776, mentioned above].

[53] Xavier Zubiri, *Fundamental Problems of Western Metaphysics*, p. 156.

[54] Kant, *Critique of Practical Reason*, p. 57; German text, p. 55.

[55] Xavier Zubiri, *Fundamental Problems of Western Metaphysics*, *op. cit.*, p. 153-154.

[56] Taken from "Moral Arguments for the Existence of God", *Stanford Encyclopedia of Philosophy*, http://plato.stanford.edu/entries/moral-arguments-god/#BasArgExeKan.

[57] *Ibid*.

[58] Xavier Zubiri, *Sentient Intelligence*, tr. By Thomas Fowler, Xavier Zubiri Foundation of North America, 1999, p. 71; Original Spanish edition, *Inteligencia y realidad*, Madrid: Alianza Editorial/Sociedad de Estudios y Publicaciones, 1980, p. 197.

[59] Thomas Fowler, "Causality and Personal Causality in the Philosophy of Xavier Zubiri", *The Xavier Zubiri Review*, Vol. 11, 2009, pp. 91-106.

[60] Xavier Zubiri, *The Philosophical Problem of the History of Religions*, translation of Mr. Joaquin Redondo, p. 42-43; original edition, *El problema filosófico de la historia de las religions*, Madrid: Alianza Editorial/Fundación Xavier Zubiri, 1993. [PFHR]

[61] PFHR, p. 43, translation of Mr. Joaquin Redondo.

[62] Diego Gracia, editor, *Man and God*, back cover summary.

[63] Diego Gracia, editor, *Man and God*, back cover summary.

[64] *Man and God*, English edition, p. 20.

[65] *Man and God*, p. 99.

[66] *Man and God*, p. 99.

[67] *Man and God*, p. 100.

[68] *Man and God*, p. 101-102.

[69] *Man and God*, p. 102.

[70] *Man and God*, p. 113.

[71] *Man and God*, p. 113.

[72] *Man and God*, p. 114.

[73] *Man and God*, p. 114.

[74] For example, see Fred Hoyle, *The Mathematics of Evolution*, Memphis, TN: Acorn, 1999, p. 20.

[75] Vincent Icke, *The Force of Symmetry*, Cambridge: Cambridge University Press, 1995.

[76] Robert Spitzer, SJ, *New Proofs for the Existence of God*, 2010.

[77] Ta-Pei Cheng, *Relativity, Gravitation, and Cosmology*, 2nd edition, Oxford: Oxford University Press, 2010, p. 186.

[78] Thomas Fowler, *"*The Scientific Status of Intelligent Design*", Faith and Reason, Vol.* 31, No. 4, 2006, pp. 503-538.