

God as the Simplest Explanation of the Universe¹

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Abstract: Inanimate explanation is to be analysed in terms of substances having properties and liabilities to exercise their properties under certain conditions; while personal explanation is to be analysed in terms of persons, their beliefs, powers, and purposes. A crucial criterion for an explanation being probably true is that it is (among explanations leading us to expect the data) the simplest one. Simplicity is a matter of few substances, few kinds of substances, few properties (including powers and liabilities), few kinds of properties, and mathematically simple relations between properties. Explanation of the existence of the universe by the agency of God provides the simplest kind of personal explanation there can be, and one simpler than any inanimate explanation. I defend this view more thoroughly than previously in light of recent challenges.

The Two Kinds of Explanation

I have argued over many years that theism provides a probably true explanation of the existence and most general features of the universe. A major reason for this, I have claimed, is that it is simpler than other explanations². The present paper seeks to amplify and defend this latter claim in the light of some recent challenges.

Explanatory hypotheses are of two kinds - inanimate (or scientific) and personal. In inanimate explanation we explain an event by means of an initial condition (or cause) C and a regularity or law of nature (N), such that these together necessitate or render probable the resulting event (E). To take a trivial example, we explain a given piece of iron expanding (E) by 'the iron was heated' (C) and 'all iron expands when heated' (N). We explain Mars being where it is today in terms of where it and the sun were yesterday and on previous days (C) and Kepler's three laws of motion (N) which together entail it being where it is today (E). In personal explanation we explain by

means of a person (S) with certain powers (P), beliefs (B) and purposes (G). By a 'purpose' I mean an intention in what the person is doing; an intentional action is an action of bringing about what the person has the purpose of bringing about. We explain my hand moving (E) by means of me (S), having the power to move my hand (P), having the purpose of getting your attention (G) and believing that causing my hand to move will do that (B). And we explain people's purposes in terms of their desires (D) and beliefs (B). By a 'desire' I understand a kind of liability with which we find ourselves to form certain purposes which render it probable that we will form those purposes. Among our beliefs we have moral beliefs about what is good to do. Moral beliefs motivate us, incline us to do the relevant action, but they may not motivate us as strongly as non-rational desires. So sometimes we have to choose between forming a purpose involving yielding to a desire to do what is bad, or a purpose involving pursuing the good despite contrary desire.

There are however two different ways of construing inanimate explanation, depending on what laws of nature are, that is what are we claiming in claiming that 'all iron expands when heated' or (perhaps more realistically) 'all photons travel at velocity c in vacuo relative to all inertial frames' are laws of nature? We can, I think, these days quickly dismiss the Humean account that they are just assertions about what in fact happens: each bit of iron when heated in the past did expand, and each bit when heated in future will expand. For there is a physical necessity in the operation of laws of nature not captured by Hume's account. That leaves two serious possibilities. The first is that laws are real things separate from the substances (physical objects), things which determine how those substances behave. The currently discussed version of this is the view that laws are relations between universals (that is properties which may be instantiated in many different substances); 'iron', 'expanding' and 'being heated' are universals tied together (and that has to be construed as tied together in a Platonic heaven) such that when you instantiate 'iron' and 'being heated' you inevitably instantiate 'expanding'. I shall call this view, advocated by Armstrong and others³, the RBU (relations between universals) account. And so we explain the behaviour of a particular substance by something outside itself which determines also the behaviour of other substances - e.g. other pieces of iron. The alternative view is the substances - powers - and liabilities account (SPL). This was the normal view in ancient and medieval thought, and versions of it have been recently advocated by Harré and Madden and by Brian Ellis.⁴ On the SPL account the fundamental laws of nature are causal laws; and these are generalizations, not (as Hume supposed) about what in fact happens, but about the causal powers of substances of a certain kind and their liabilities (either with physical necessity or with a certain physical probability)

to exercise them. Thus 'all iron expands when heated' being a law of nature is a matter of every piece of iron having the power to expand and the liability (with physical necessity) to do so when heated. Kepler's laws are generalisations about the powers of planets to move in certain ways and their liabilities to do so under certain circumstances. It is a contingent matter that things fall into a few kinds distinguished by their powers and liabilities as well as by other properties. This ultimately derives from the fact that their constituents are fundamental particles (substances, such as electrons and quarks) which fall into a very few kinds distinguished from each other by their mass, charge, spin etc; these latter being - at least in part - analysable in terms of the powers and liabilities possessed by the particles.

Although I think that the main argument of this paper can be phrased in terms of either account of inanimate explanation, in order not to make the paper too long, I am now going to make the assumption that the SPL account is the correct account. One quick reason for rejecting RBU, is the implausibility of a Platonic heaven containing universals influencing the behaviour of mundane things. Another reason is that it enables us to give a more unified account of explanation.⁵ For, given SPL, all explanation, inanimate and personal, now involves substances (either persons or inanimate things) and their powers. I assume that an inanimate thing must be physical (that is, public.) The difference between the two kinds of explanation is now that inanimate things have liabilities (inevitably or with a certain physical probability) to exercise those powers under certain circumstances and so to cause effects, whereas persons intentionally exercise their powers to cause effects in the light of beliefs about what exercising some power will achieve and the purposes which they seek to achieve. Explanation of an event will now consist (in the inanimate case) in the occurrence of circumstances under which some substance (or substances) was liable to exercise certain powers. That a piece of iron expanded when heated is explained by it (S) having the power to expand (P) and the liability to exercise that power when heated (L), and by (C) it being heated. Strictly speaking no law 'all iron expands when heated' is part of the explanation. The 'law' is a mere description of the powers etc of all pieces of iron, relevant only because it entails the powers of this piece. Explanation of an event by personal explanation will invoke only S, P, B, and G; although all these factors might themselves be explained (in so far as they can be explained) by an inanimate explanation- e.g B may be explained by the liability (L) of S to have a belief of a certain kind under certain circumstances which did in fact occur; and G may be explained by S's desire to form such purposes, that is a liability (at least with physical probability) to do so. And conversely the factors involved in an inanimate explanation might be explained by a personal explana-

tion.

The Criteria of Correct Explanation

I suggest that an explanatory hypothesis (or theory) is rendered probably true (or likely to be true) by data (evidence) insofar as (1) the occurrence of the evidence is probable if the hypothesis is true and improbable if the hypothesis is false, (2) the hypothesis 'fits in' with any 'background evidence' (that is, it meshes with other hypotheses outside its range which are rendered probable by their evidence in virtue of the other criteria), (3) the hypothesis is simple, and (4) the hypothesis has small scope.⁶ The scope (or content) of a theory, as I shall understand it, is a matter of how much it purports to tell us about the world, in the extent (the range) and precision (its detailed claims about phenomena within that range) of its claims. (3) and (4) are features internal to a hypothesis, independent of its relation to evidence and so determine its prior probability (probability prior to considering the evidence). While the more the hypothesis claims, the more likely it is to be false (which is what the criterion of scope says), simplicity carries more weight than scope; scientists consider some theory of enormous scope (concerned with the whole universe, and making detailed claims about it) probable if has a relatively simple set of laws. There may be no relevant background evidence, and then criterion (2) drops out. One case of this is when a hypothesis has very large range (purports to explain a vast amount) and so there is little if any evidence about fields beyond its range. Among large scale theories of equal scope (equal range and making equally detailed claims), such as theism and rival accounts of why there is a universe of our kind, relative probability depends on criteria (1) and (3) alone; and so in the case of theories leading us to expect the evidence with the same probability (that is, satisfying criterion (1) equally well), on criterion (3) alone. Let me give you two examples - one of each kind of explanation - illustrating how, among theories satisfying the other criteria equally well, the simplest theory (simplest in an intuitive sense yet to be analysed more precisely) is the one most probably true.

Suppose we find among pages recovered from an ancient library three pages in similar handwriting of an apparently connected philosophical argument. One hypothesis is that the same person wrote all three pages. An alternative hypothesis is that each page was written by a different philosopher; all three philosophers had similar handwriting, and thought independently of the same argument which they wrote down; but only the first page of the first philosopher's text, the second page of the second philosopher's text, and the third page of the third philosopher's text have survived. The two hypotheses are

of equal scope - telling us about who wrote these pages; and is such as to lead us to expect the data with equal probability. But, unless there is relevant background evidence, the first hypothesis is obviously more probable in postulating only one person writing the pages rather than three. For my second example consider a theory which renders probable the same astronomical evidence observed so far as does General Relativity. General Relativity does this (on the SPL account) by attributing to stars certain powers and liabilities to exercise them dependant on the structure of the spatio-temporal region in which they are situated; and it predicts further observations tomorrow in virtue of the same powers and liabilities. The rival theory claims that the liabilities of these things to exercise their powers will depend on the structure of their spatio-temporal region in a different way when the expansion of the Universe causes galaxies to have a certain average distance apart (which distance they will attain tomorrow) from the way they depend today. General Theory is more probable than its rival because (put in terms of laws) it consists of only one set of complicated equations and so is simpler than its rival which consists of a conjunction of two sets of complicated equations. So again simplicity is evidence of truth. In so far as General Theory gets support from other theories of physics with which it fits, then unless simplicity is evidence of truth, those other theories would be just as probable as rival theories adjusted in a similar way, and General Theory's rival would fit better with those rivals; and so again General Theory and its rival would be equally probable on the evidence. But they are not, and that is because of the crucial role of the criterion of simplicity.

The Nature of Simplicity

The assimilation of scientific explanation to personal explanation, consequential on adopting the SPL account of laws of nature, makes it possible to give common criteria of simplicity covering both types. So let's look at what the criterion of simplicity, when used in this way as evidence of truth amounts to. It consists of various sub-criteria. First, fewer entities (alias, substances or objects). Astronomers don't postulate an extra planet, unless thereby their data are made more probable. And the historian in my earlier example postulates as few philosophers writing texts as possible. What constitutes one entity as opposed to two? Entities require a certain causal unity to them; they stick together. But whether the parts of a physical thing stick together is matter of degree, and it's not always clear when there are two entities rather than one. (For some purposes you can treat a double-star system as one entity, for other purposes you must treat it as two entities.) But clearly an entity which has no parts is just one entity; and as such a very simple one. Secondly, fewer properties attri-

buted to entities. Don't postulate a new property possessed by (e.g.) a fundamental particle unless it results in a gain of explanatory power. Again, the application of this subcriterion depends on how you count properties. A property defined by similarity to paradigm examples of its application, such as 'green' or 'mass' or 'bright' counts as one property; properties defined as conjunctions or disjunctions of such properties (or as having more complicated probabilistic relations to such properties) count as two or more properties. It follows from this subcriterion that hypotheses are simpler, the more accessible to observation (or experience generally) are the properties which they postulate. This can be illustrated by the well-known philosophical example of two theories to account for the colours of emeralds. 'All emeralds are green' and 'all emeralds are grue' (where 'grue' means 'green before 2050 A.D., or blue thereafter') both render the data about the colours of emeralds now (in 2010 A.D) available equally probable. But the theory 'all emeralds are green' is more probable than 'all emeralds are grue', and this is because 'grue' is defined in terms of an accessible property (green) and another property (the date, whose definition in terms of what is accessible clearly has a certain complexity)⁷.

Among the properties of objects are their powers and liabilities, purposes and beliefs. In explaining human behaviour we need to attribute to humans as few and as accessible such properties as will suffice to render probable their behaviour. And we need to attribute to them as few and accessible desires and moral beliefs as will explain (at least in part) their purposes; and as few and accessible liabilities to acquire beliefs as will explain their moral and other beliefs. I illustrate this for the case of powers. Someone may walk (as far as we can judge, intentionally) one mile from A to B one day at 3mph, and two miles from C to D another day at 3 mph. But we wouldn't explain his behaviour on the first day simply by his having the power to walk one mile at 3mph on the first day; and explain his behaviour on the second day simply by his having the power to walk two miles at 3mph on that day. Rather we'd explain both pieces of behaviour by his having the power over a period to walk at least two miles in a day at 3 mph. Since both previous powers follow from one equally accessible property, we attribute the latter to the person; and so we believe that in virtue of having the more general power, that person will be able to walk at least two miles at 3mph on other occasions. And so we seek to attribute to humans powers as few and as accessible as will explain their behaviour. Similarly for inanimate things - for example, we attribute to fundamental particles as few forces (that is, powers to affect other substances) as possible.

We explain the exercise of powers by inanimate things by their liabilities to exercise those powers. Liabilities are also simpler, the fewer (accessible) properties by which we distinguish them. A

power of a substance is a power to exercise various amounts of causal influence; and the liability is a liability to exercise some particular degree of it under certain contingent circumstances. A body may exert more or less gravitational influence on another body in virtue of its liability to do so being dependent on its mass, the mass of the other body, and their distance apart. And an explanation is simpler, the simpler the mathematical relations between the degrees of the various properties and liabilities, and the simpler the mathematical entities involved in stating the relations. Such a relation or entity A is simpler than another one B, if A is defined and so can be understood without reference to B but not vice versa. For this reason multiplication is a more complicated relation than addition, numerical powers more complicated than multiplication, and vectors more complicated than scalars; and large finite integers are more complicated entities than small ones (you can't understand '5' except as '4+1', but you can understand '4', '+', and '1' without understanding the notion of '5'); and (as their name implies) complex numbers are more complicated than real numbers, real than rational numbers, rational numbers than integers. So an explanation which explains the pressure exerted by a gas on the walls of a container is simpler if it makes this depend on only three other quantities (the volume of the container, the temperature of the gas, and a constant varying with the kind of gas) rather than on four. It is simpler if the relation between the variables involves just multiplication as in the Boyle-Charles law $pV=KT$, rather than on exponentials, logarithms and square roots, for example $p = \log_e vk^{1/2}T^2$. If laws of both kinds satisfied the first two criteria equally well, a law of the first kind would be more probably true than a law of the latter kind. For exponentials, logarithms and powers are defined (and so can be understood) in terms of multiplication but not vice versa. So too a law of gravity - $F = mm'/r^2$ to be preferred to a law $F = mm'/r^{2.00}$ (ten zeros) ¹ if both are equally well explain the data (of measurements accurate only to a certain degree).

Likewise with purposes, desires and beliefs. A purpose to visit London and a purpose to learn to sky-dive are separate purposes, because they are not derivable from one equally accessible general purpose. But a purpose to write the first chapter of my book and the purpose to write the second chapter of my book are derivable from an equally accessible purpose to write my book; and that is why the simpler and more general description should be attributed to me, given evidence of my writing the first chapter and then the second chapter, in the absence of counter-evidence. We attribute to persons continuing accessible desires (varying with circumstances in a mathematically simple way, which give rise to purposes at appropriate times - for example, a desire to eat which increases when the person has not eaten for a long time, and decreases after eating.) Likewise it

is simpler to explain many of my beliefs by such general liabilities as the liability (at least with high physical probability) to believe what I am told and to acquire beliefs about the location of objects in my field of vision, than by separate liabilities for each belief. And powers, beliefs, purposes, desires and liabilities are readily accessible properties. In summary hypotheses of personal and scientific explanation (on the SPL account of the latter) are simpler if they postulate fewer substances, fewer (accessible) properties (including powers and liabilities), and mathematically simpler relations between them (including mathematically simpler numbers in the statement of these). These features of simplicity are features of the simplicity of the actual components (substances, properties, and the relations between them) of an explanation of some phenomenon independently of whether they are operative in other similar substances.

Natural Theology

Natural Theology of a probabilistic kind claims that the most probable explanation of the existence of the universe and its most general features is that they are caused by God. These most general features include the universal operation of simple laws of nature (that is, in terms of the SPL account, that every physical object behaves in exactly the same way codified in the simple 'laws' of nature), those laws and the initial (or boundary) conditions of the universe being such as to bring about the existence of human bodies, and humans being conscious beings, open to a finite amount of suffering and having some ability to bear it or alleviate it. (I mean by the 'boundary conditions' of the universe those general features of universe which, in addition to those captured by 'laws' of nature, the universe would need to have if it did not have a beginning, at all times if human bodies were to evolve - for example enough matter-energy.) These general features, the natural theologian's evidence or data, described in terms of the SPL account are the existence of a vast number of substances all behaving in the same simple way such as to bring about somewhere or other at some time or other subject to some suffering the bodies of conscious humans. Natural theology needs therefore to claim that the hypothesis of theism (that there is a God) satisfies the criteria of correct explanation set out earlier better than does any rival explanation. As I wrote earlier, for very wide-ranging theories such as theism and any rivals, this will depend only on how well they satisfy criteria (1) and (3).

Criterion (1) is satisfied insofar as the evidence is probable if the hypothesis is true and improbable if the hypothesis is false. I have argued elsewhere at some length⁸ that if there is a God, it is quite probable that he would bring about the existence of embodied

humans in conditions such as we find on earth (including limited suffering and the possibility of bearing or alleviating it) and so that he would bring about those general features of the universe just described which are necessary conditions for the existence of such humans. The basic reason for this is that God being perfectly good will seek to produce good things; humans are good things of a unique kind having - unlike God - the power to make efficacious choices between (limited) good and evil. It is therefore quite likely that God will produce them. But humans can only make efficacious choices (ones that make a difference) if they live in an embodied state in an orderly universe where they can predict the effects of their actions, and that minimally involves a universe with many substances of few kinds (protons, electrons etc) with simple powers and liabilities. But of course there are innumerable other logically possible hypotheses which satisfy criterion (1) equally well, both hypotheses in terms of many or weaker deities, and scientific hypotheses to the effect that the initial conditions of the universe and its laws of nature are ultimate and have no further explanation (e.g. in terms of God bringing them about) and eventually cause the existence of conscious beings. My concern in this paper however is only to discuss how well different such hypotheses satisfy the other relevant criterion, criterion (3), the criterion of simplicity. I now proceed to inquire, in the light of my analysis of that criterion, how well theism satisfies the criterion of simplicity, and how well any rival hypothesis either of a personal or an inanimate (scientific) kind which satisfied criterion (1) to some significant degree would also satisfy the criterion of simplicity.

The Simplicity of God.

The simplest kind of explanation of the features which I have described will be in terms of some one first substance (whether some first chunk of matter-energy or a personal creator) which caused, in virtue of its powers and liabilities or its powers, beliefs and purposes, the multitude of substances of a very few kinds with their powers and liabilities. If the universe had a beginning, the 'first substance' would be a substance which caused the emergence and evolution of the universe into this multitude a finite number of years ago. But if the universe has always existed, then this 'first substance' would be one which everlastingly keeps this multiplicity of substances in existence with their powers at all moments in time. Theism (as understood by the Christian and similar religions) postulates a person as the cause of the universe and so provides a personal explanation of its existence. This person is often called 'God'; though in the case of the Christian tradition, we must regard the first substance as 'God the Father' who according to Christianity inevitably brings about from all eternity the other two members of the Trinity⁹. Other the-

istic religions do not of course have this feature. So can the traditional divine properties be construed in such a way that this unique personal substance whom in future I will call simply 'God' is a simple substance and the simplest substance which can perform this explanatory role?

God is one person. So theism is inevitably a simpler theory than polytheism. To be a person at all, a substance has to live for a period of time, to have some power (to do intentional actions), some choice (whether free or not) of which actions to do, and some true beliefs. He will have to have some true beliefs about his intentional powers (what he can do); otherwise he will not be able to bring about anything intentionally.) I shall assume that there cannot be a timeless person, and so that any person who exists exists and so has his properties at moments of time¹⁰ If there could be such a person, the simplest kind of person would be an everlasting omnipotent, omniscient, and perfectly free person, a person to whose length of life, power, true beliefs¹¹, and freedom of choice there are no limits; or rather no limits except those of logic, since any description of what all this amounts to has got to be free from contradiction. A person is everlasting if he exists at all times, omnipotent if he can do all actions, omniscient if he has all true beliefs, perfectly free if he is subject to no non-rational desires which influence how he chooses to act. The concepts of length of time, intentional power, belief, choice, and influence on choice are concepts of properties maximally accessible; we are more familiar with paradigm examples of these properties than of virtually any other properties. The concepts of 'all', or 'unlimited' (that is having no (zero) limits) are concepts far more accessible than concepts of particular large numbers. Hence the properties of everlasting life, limitless power, having all true beliefs, being subject to no causal influences on choice are far more accessible than the properties of living for a particular large number of years, having a particular large finite degree of power, having a particular large finite number of mostly true beliefs, and being subject to fairly few non-rational desires.

A person P is omnipotent at a time t iff he has the maximum degree of logically possible power. I suggest that that amounts to this: he is able at t intentionally to bring about any state of affairs which it is logically possible for anyone at t to bring about (and the description of which does not entail that P did not at t bring it about.)¹² However the notion of having an intentional power or an ability to do some intentional action is somewhat unclear. One says that someone has a power or ability when asleep, meaning by that he could exercise it if he was awake and tried to do so. One might say that someone has the ability to speak French simply because he could learn it if he tried; or even that he has the ability to speak Gaelic for the same reason even if he does not believe that there is such a language as Gae-

lic. But clearly he has the power in its fullest form if he can exercise it at will, is conscious and knows that he can exercise it at will; only his will is preventing him from exercising it immediately. So omnipotence, being the maximum possible degree of power should be construed as equivalent to the following: a person P is omnipotent iff he is consciously aware of all the states which it is logically possible for anyone to bring about at t (and the description of which does not entail that P did not bring it about); and if he chooses at t to bring about any such state, it happens. Given the logical impossibility of backward causation, an omnipotent person cannot affect the past¹³ or the truth of logically necessary truths, which I assume to include the fundamental moral truths¹⁴. Hence the choices of an omnipotent person can affect only contingent future states.

A person P is omniscient at t (in the most natural sense) iff he knows all propositions true at t . I have spelled out being 'perfectly free' as being subject to no non-rational desires influencing his choice. Clearly any agent who makes a choice is influenced by the nature of that choice, what it involves, and so by considerations of reason, the apparent goodness or badness of the action. To believe that some action is good to do necessarily gives you a desire to do it in proportion to its believed worth. The apparent good motivates, and the apparently better motivates more. What is ruled out by 'perfect freedom' are desires to do an action which is apparently bad, or ones which are stronger than its apparent worth would motivate. Hence a person who is both omniscient and perfectly free will will be moved to do an action in proportion to its actual goodness. God being perfectly free will set himself to do what he believes best; being omniscient (to the extent of knowing all necessary truths and truths about the past) he will have true beliefs about what is the best; and being omnipotent, he will succeed in doing it. So he will always do the best action where there is one. If in some situation there is no unique best action (i.e some incompatible action would be equally good, or there is an infinite sequence of incompatible actions, each less good than the next member of the series), then God cannot do the best. But his perfect freedom will lead him to get as close to that as the nature of the good will allow; and that means that if there are several equal best actions he will do one of them, and in the infinite series situation he will do some good (and no bad) action. So God will be as good as it is logically possible to be, and we may call that 'perfectly good.'¹⁵ So it turns out that God being 'perfectly free' in my sense has the consequence that while he can do evil, inevitably he will never exercise the choice to do so. In another perhaps equally natural sense of 'perfectly free' a perfectly free person would be one who could make any logically possible choice including doing evil. So why my sense of 'perfectly free' rather than the rival sense? Because it is a simpler sense. 'Perfect freedom' in my sense is simply the absence

of properties, non-rational desires; 'perfect freedom' in the rival sense would be a complicating feature of God, because it would involve his being influenced by non-rational desires which alone make possible a choice of evil. So I stick with my sense.

Frequently, indeed I would have thought in most situations, there will be no unique best action for God to do. Surely, even if there were no incompatible better action for God to do, it would have been an equal best action for God to make (the universe begin in such a way as to cause) the planet Uranus to rotate in the same direction as the other planets as to rotate in a different direction. And however many planets (in our galaxy or in some distant galaxy) containing living organisms God makes, it would be better if he makes one more. And so on.

But these definitions give rise to a problem, that while there could be an everlastingly omnipotent and perfectly free person, and there could be an everlastingly omniscient person, everlasting omnipotence plus perfect freedom is incompatible with everlasting omniscience. In the absence of rational considerations relevant to his choice and in the absence of any non-rational desires influencing that choice a God perfectly free and omnipotent would have a free choice of which state of affairs to bring about before the time when the relevant state of affairs came about. But then he would have been free to choose to make any earlier belief about how he would choose false, and so only by cosmic luck could all God's beliefs have been true, and beliefs acquired by luck (see note 12) do not constitute knowledge. So omnipotence plus perfect freedom are incompatible with omniscience understood in the obvious way. On the other hand a more restricted kind of omniscience, knowing all truths about the past and all necessary truths (including the necessary moral truths¹⁶) is not merely compatible with omnipotence plus perfect freedom but entailed by them. This is because for any past state or any necessary truth, there are future states of affairs which can be defined by its relation to them, from which it follows that if God is to have the choice of bringing about these states, he needs to know all necessary truths and all truths about the past. For example, if God is to know that he can choose now to bring about a third world war or a prime number of planets greater than 7, he has to know that so far there have been only two world wars, and that there is a prime number greater than 7. Since omnipotence entails knowledge of moral truths, omnipotence plus perfect freedom entail perfect goodness; unrestricted omniscience is not necessary for this. Omnipotence is the simplest degree of one property necessary for a person, perfect freedom is merely the absence of certain complicating properties (causal desires) which yield a vast degree of knowledge of a simple although not the simplest kind. ('Simple' because it is all the knowledge possible for a perfectly free and omnipotent person.) On the other hand a person

omniscient in the full sense which includes knowing everything which he would choose to do, could not be perfectly free. Indeed he could not be free to any degree. He would be causally predetermined at every moment of time to do every future action which he would do on each occasion when there is no unique best action for him to do. That has the consequence that on each such occasion he would be subject to a particular non-rational desire (determining and not merely influencing him) to do this rather than that action (when there would be no reason for doing this action rather than that one.) This would make God a very complicated person. So which is the way of understanding omniscience which makes an omnipotent being the simplest kind of person? The answer is clearly the restricted kind of omniscience¹⁷ which allows him also to be perfectly free.

The other divine properties (understood in natural ways) follow from the ones analysed above¹⁸. For example, since God is omnipotent, everything else that comes to exist comes to exist because he causes it or allows it to exist; hence he is in a natural sense creator of all that is. Being omnipotent, he can make things happen anywhere and learn about things anywhere without depending on intermediate causes; so in a natural sense he is omnipresent, and so is not tied down to a body, and so is not physical.

God's omnipotence is a power and so an intrinsic property. God's omniscience (in the restricted sense) is not a power or a liability¹⁹ but a categorical state necessary for omnipotence; and it might seem that it is not an intrinsic property of God but a relation to other entities because it involves possessing (having within oneself) certain objects - all true beliefs. If that was the right understanding of omniscience, then of course God would certainly not be simple. So all depends on what it is to have a certain belief; and it is not, I suggest, possessing an object within oneself. I suggest that having a belief that *p* is an intrinsic property and one too primitive to be defined. But we can show what we are talking about when we talk about *S*'s belief that *p* by saying that it is the sort of thing *S* would acquire in a certain way (e.g. by *S* seeing that *p*, or by someone telling *S* that *p*) and which makes a certain kind of difference to *S*'s behaviour (e.g. if it follows from *p*, that the way to get *x* is to do *A* (and not *B*), and it follows from not-*p* that the way to get *x* is to do *B* (and not *A*), and *S* has the purpose of getting *x*, he will do *A*.) We humans can have beliefs about matters about which we are not thinking. I have beliefs about what I did when young about which I am not thinking, but they are my beliefs in that - if prompted - I could bring them to consciousness. It is simpler to suppose that all God's beliefs are currently before his mind²⁰; that he is currently aware of all his knowledge and so beliefs involved in his omnipotence follows from my account of his omnipotence, and these are the only ones which I am suggesting that he has. Beliefs need not be put into words; children have beliefs be-

fore they can put them into words, and when they acquire language they report that they had those beliefs. So I think that the best analogy for God's beliefs are the beliefs we acquire when we look at a scene before our eyes. Merely by looking we acquire innumerable beliefs about what objects there are, where they are, and what they look like. We are aware of these beliefs, but not as linguistic entities, and not as the brain states which causally sustain the beliefs in us. The beliefs are there in a fused pre-linguistic state out of which we can - if we choose - separate individual beliefs and put them into words (e.g. that 'there is a tree outside the window'.) When we see things and acquire beliefs about them both as they are now, and (when we look at the stars) as they were thousands of years ago. Seeing involves categorizing: in seeing a tree I do not merely have a visual impression caused by a tree, but I see an object outside the window as a tree. And seeing an object thus categorized inevitably involves seeing its powers - the tree has the power to grow, to resist pressure and so on. God's beliefs are in this way just like the beliefs of which we are aware, but they concern the whole of the universe and the insides of things as well as their outsides. He sees things as they are and as they were. While our beliefs may come to us by different causal routes, it is simpler to suppose (as the traditional picture supposes) that God's beliefs come to him only by one route, directly. So too God's wider fused pre-linguistic state of belief is one integrated state of himself. It does not consist of separate items within himself, but it is a property of himself.

God's perfect freedom is, to repeat, merely the absence of the property of being influenced by non-rational desires. It is always simpler to postulate an absence than a presence. It is simpler to suppose that God has the divine properties discussed so far essentially; otherwise it would be a vast accident that God continued for all time to exist and have these properties. By contrast an ordinary human person, although he needs some power etc in order to exist, does not need to have some particular amount of power in order to be the particular human he is. And it is simpler to suppose that God does not have thisness, which would be a particularizing feature additional to his properties. (A substance has thisness iff there could be instead of it another substance with all the same properties, intrinsic and relational, as it. God would not have thisness iff there could not be instead of the actual God a different God with all the same properties, and so all the divine properties discussed so far.) But a person who does not have thisness, and for whom not merely having power (plus freedom) but having a particular amount of power (plus freedom) is essential to his being the person he is, is a person unlike any other persons with whom we are familiar. To call such a 'person' a 'person' is to use the word in a somewhat analogical sense, but one significantly similar to the ordinary notion (like an ordinary person, God

has purposes and beliefs) for God to count as a person in a wide sense.

My understanding of the divine properties is traditional, except in respect of his being everlasting rather than timeless, and being omniscient only in the restricted sense²¹. My arguments however have assumed that there cannot be a timeless person, and purport to show that the simplest kind of God would be omniscient only in the restricted sense. Persons other than God have more limited degrees of power and knowledge; their purposes are not influenced solely by their beliefs about what is good but by various desires for particular states of affairs whose strength is not always aligned with their beliefs about the goodness of these states. Other persons are very particular limited persons. God, defined (in the way I have spelled out) as an essentially everlasting omnipotent perfectly free person lacking thisness is a very simple substance, the simplest kind of person whose existence could explain the existence of the universe and its very general features. Hence the hypothesis of theism so construed is simpler than any hypothesis explaining the very general features of the universe in terms of a god construed in some other way. The sense in which I am claiming that God is simple is not quite the same as the sense in which later medieval theologians claimed that God is simple but it is not too far distant from it, at least on a familiar account of what that sense was.²²

The enormous simplicity and so prior probability of hypotheses postulating omni-properties can be illustrated by a simple scientific example. Newton's theory of gravitation had three laws of motion (which are largely in effect definitions) and its law of gravity affirming of every given body, that it has the power to attract every other body in the universe with a force proportional to mm'/r^2 and the liability always to exercise that power -from which it follows that each body also has the liability to be attracted by every such body with that force. These extensive powers and liabilities belong to the tiniest fundamental particle. So the power of such a particle extends over physical objects to the ends of the universe and that covers quite a range of the extent of God's power, though of course in no way comparable to it in strength; and its sensitivity to other physical objects, which we may compare to God's knowledge of them, also extends over quite a range of what God knows about. If there was no quantum indeterminism and we could make measurements with infinite accuracy, merely measuring the movements of one particle could tell us an enormous amount about the distribution of massive bodies throughout the universe; and measurements on several particles would tell everything about this (given the contingent truth of Newton's theory). The considerable probability of Newton's theory on the evidence available in 1689, far greater than that of the infinite number of rival theories which could have been postulated and

would have predicted the evidence equally well, derives from the enormous simplicity of its omni-properties, ones which have considerable similarity to the omni-properties which theism attributes to God.

The simplest inanimate explanation of the universe is less simple than God

Could there be a physical object as simple as God (understood in the way developed above) which could provide an inanimate explanation of the existence of a universe with the very general features described above? The normal kind of 'first substance' postulated by physicists is an extended substance – a 'vacuum state' or a very compressed chunk of matter-energy. But such a state has parts and so is less simple than God. But physical cosmology could postulate one unextended substance, a particle, as that from which all else evolved (or on which all else depended, if the universe did not have a beginning). It would need to be a physical object of a certain kind in having certain properties, powers, and liabilities. The normal kind of physical substance would have powers of particular mathematical quantities (such as the attractive and repulsive powers of mass and charge) and liabilities to exercise them under certain physical conditions. These would need to be fairly specific powers and liabilities (some mathematically precise mass and charge for example) if they were to make it probable that it would bring about a universe with substances of few kinds with the same simple powers and liabilities as each other, of a human-body producing kind; and this specificity would make the hypothesis of the existence of such a substance more complicated than the hypothesis of theism. The singularity of the Big Bang would have to have all or at least (given a certain amount of indeterminism) most of the details of the future development of the universe built into it.

But could we not instead merely suppose that this physical object had the power to produce a good universe, and the liability always to exercise that power, and that would explain why we exist (because of the goodness of humans existing) and the other general features of our universe (the details of which were not predetermined but constitute one of the ways in which the universe would be good)? The power could be exercised by producing an appropriate sort of Big Bang. Given my earlier claim that laws of nature are to be analysed in terms of the powers and liabilities of substances, this is the nearest we can get to John Leslie's hypothesis that goodness has a propensity to exist.²³

However even if such a physical object could do the explanatory work, it would not be nearly as simple as God. Like God, it could be

essentially unextended, everlasting and lack thisness. The physical object's power to create the good would however be a limited power and so less simple than omnipotence (which can only be had by a being which can choose to act). And it would also need another power, the power to prevent any other substance bringing about the bad, and the liability always to exercise that power. Theism does not need a corresponding second power and liability, because it follows from divine omnipotence (plus perfect freedom) that every other substance only exists and produces effects insofar as God allows it to do so. The liabilities always to exercise these powers would be properties of the physical object additional to its powers. Yet being physical (and so public), it couldn't simply have *those* liabilities. A physical object (unless it is the only physical object) must have a location - there must be somewhere where it is (relative to other physical objects), and that means that there must be some detectable effects of it in one place which are not detectable elsewhere. (If a physical thing is here rather than there, here and not there is where it impedes the motions of other objects, or can be detected by a Geiger counter, or from where it emits light, or whatever.) So if the first physical substance were everlasting and so existed alongside other physical objects, its liability to produce effects must be manifested more or differently in one place than others, and that makes that property not a very simple property. (If however it ceased to exist after the creation of the physical universe, and so did not exist alongside other physical objects, it would not be everlasting and so would be less simple than God for a different reason.) So the properties of a first physical object (additional to being everlasting, unextended, and lacking thisness, which God also has) would make it far from being very simple. In addition to the properties common to both God and a first physical substance, God would be merely omnipotent and perfectly free, but the latter, as we have seen, is simply the absence of something -and absence is always simpler than presence. I conclude that the powers and liabilities which we would need to ascribe to the single particle hypothesis (the simplest kind of inanimate explanation of the orderliness of the universe there could be) would be less simple than the properties of God - essential everlasting omnipotence (plus perfect freedom), from which all the other properties follow. So the hypothesis of theism provides a simpler explanation of the very general features of the universe than does any inanimate explanation. And it will be evident that the primary reason for that is that moral beliefs motivate; and so a conscious being needs less in the way of properties than does an inanimate one to cause the same effects.

And even if the hypothesis of one physical first substance were just as simple as the hypothesis of God, its propensity to create the good could not explain certain more particular features of our uni-

verse which would only be good if they were brought about by God. Vast numbers of religious experiences apparently of God would not be good unless there is a God. Interactive prayer would be deceptive. And our universe contains so much suffering that it would probably be overall a good universe only if its creator were to suffer with his creatures²⁴; and that is something that only a person can do. I conclude, for two separate reasons that God (understood in the way which I have developed) is the simplest kind of cause of our universe there could be.

NOTES

1. This is a very slightly corrected version of the paper published in *European Journal for Philosophy of Religion* 2 (2010) and forthcoming in (ed) Anthony O'Hear, *Philosophical Essays on Religion*, Cambridge University Press. This paper is dependent on much earlier writing of mine, especially *The Christian God* (Oxford: Clarendon Press, 1994) chs 6 and 7; *Epistemic Justification* (Oxford: Clarendon Press, 2001) ch 4, and 'How the Divine Properties Fit together: Reply to Gwiazda', *Religious Studies*.
2. **45** (2009), 495-8. The latter paper was a reply to Jeremy Gwiazda, 'Richard Swinburne's argument to the simplicity of God via the infinite', *Religious Studies*, **45** (2009), 487-93. I am grateful to Jeremy Gwiazda whose criticism of earlier views of mine helped me to formulate the view presented in this paper.
3. See for example, my *The Existence of God*, second edition (Oxford: Clarendon Press, 2004) chs 3 and 5.
4. See D.M. Armstrong, *What is a Law of Nature?* (Cambridge: Cambridge University Press, 1983); Michael Tooley, 'The nature of laws', *Canadian Journal of Philosophy*, **7** (1977), 667-98; and F.I. Dretske, 'Laws of Nature', *Philosophy of Science*, **44** (1977), 248-68. Armstrong construes universals in an Aristotelian way (that is, as existing only when instantiated). But that will not explain why their first instantiation had the character it did, e.g. why the first piece of iron expanded when heated. That could only be explained if the universals were already tied together, and that would involve their existing before being instantiated, and so in a 'Platonic heaven'. This latter is the view of Tooley, and it is in his way that I have spelled out the RBU account.
5. R. Harré and E.H. Madden, *Causal Powers* (Oxford: Basil Blackwell, 1975); Brian Ellis, *Scientific Essentialism* (Cambridge: Cambridge University Press, 2001).
6. For further argument in defence of the SPL account see pp. 179-85 of my 'Relations Between Universals, or Divine Laws?', *Australasian Journal of Philosophy*, **84** (2006), 179-89.
7. For a fuller account of these criteria, but one which does not distinguish the

different roles some of them play on the RBU and SPL accounts of laws of nature, see my *Epistemic Justification*, ch 4. As I explain in the text, the 'scope' (or content) of a theory is a function both of its range (the area of the world for which it claims to provide explanations) and its precision (how detailed are its claims within this range). In consequence of this crucial distinction between the two components of scope, I have realized the need to correct what I implied in the original published version of this paper, as well as in many other places (in particular, *The Existence of God*, pp. 59-60), that criterion (2) drops out to the extent to which a theory has 'large scope'. What leads to criterion (2) dropping out is only the range of the theory, not how detailed are its predictions within that range; and I have now corrected the text in this respect. Fortunately this point does not affect the main uses to which it put this implication.

8. But couldn't there be a being which just recognized things as 'grue' without doing so in virtue of their colour and the date? There could certainly be a being which classified together (in virtue of their similarity to paradigm examples) the same objects as we would call 'grue' (on the grounds of their satisfying the stated definition). But he would be picking out a different property ('grue*') which - as far as his experience went - was coinstantiated with 'grue'. Yet there could be no guarantee that the two properties individuated in different ways would always coincide. We have no access to the property of being grue* and so cannot use it in our explanations of things.
9. See *The Existence of God*, chs 6-13, and the shorter and simpler book *Is There a God?* (Oxford: Oxford University Press, 1996.) chs 4-7.
10. A simple hypothesis is no less simple for entailing complicated consequences. Christianity claims that God the Father inevitably in virtue of his nature brings about the other two members of the Trinity, all of whom together constitute one God. (For a argument in justification of this Christian claim see my *The Christian God*, especially ch 8.) But I suggest that arguments to the existence of that one God must proceed via arguments to the existence of one person on whom everything else depends, and so to the existence of God the Father, whose postulated properties are the same as those attributed to the God of Islam or Judaism. .
11. For argument in defence of this claim see my *The Coherence of Theism*, revised edition (Oxford: Clarendon Press, 1993), 223-9; and *The Christian God*, ch 4 and pp. 137-44.
12. It is generally agreed that knowledge is true belief not acquired by luck, although there are different views about what 'not acquired by luck' involves. I shall be arguing shortly that all the divine properties which I have been discussing belong to God essentially and so not by luck. So God's true beliefs will amount to knowledge. It will simplify the present discussion if I assume this already established.
13. Philosophers have found it very difficult to analyse an intuitively simple concept of omnipotence (maximum logically possible power) in such a way as to avoid various paradoxes. For the history of attempts to analyse the concept of omnipotence, see Brian Leftow 'Omnipotence' in (ed.) T.P. Flint and M.C. Rae, *The Oxford Handbook of Philosophical Theology* (Oxford: Oxford University Press, 2009). I hope that my analysis avoids all such paradoxes, but if it doesn't the concept is a simple one which makes clear the kind of qualifications which are necessary to avoid paradoxes.

14. That is, he cannot affect 'hard facts' about the past, these being ones whose truth conditions are solely in the past.
15. For my reasons for this assumption see for example pp.151-55 of my 'What Difference does God make to Morality' in (ed.) R.K.Garcia and N.L.King, *Is Goodness Without God Good Enough?* (Lanham: Rowman and Littlefield, 2009.)
16. William Rowe (among others) has argued that unless God always does an action better than any incompatible actions, God cannot be 'perfectly good', and so there cannot be a God of the traditional kind. See his *Can God be Free?* (Oxford: Clarendon Press, 2006.) Like many others, I find this view highly implausible.
17. Contingent moral truths are ones made true by a conjunction of a necessary moral truth and a contingent non-moral truth. For example, it would be contingently true that I ought to pay you £20 if I have promised to pay you £20 (contingent non-moral truth) and people ought always to keep their promises (necessary moral truth). The contingent non-moral truths which, together with necessary moral truths, create contingent moral truths are normally truths about the past - truths about past commitments or truths about what past evidence shows is likely to happen in future. Hence a being who knew all truths about the past and all necessary truths would normally know all moral truths about what would be good for him to do now. But insofar as whether an action available to such a being who is also omnipotent and perfectly free (in my sense) is good now depends on what is yet to happen (and not merely about what present evidence shows about what is likely to happen), then such a being would predetermine the future in order to enable him to do what is good now. Hence only the kind of omniscience entailed by omnipotence is necessary for God's perfect goodness.
18. For fuller discussion of this see *The Christian God*, 150-1.
19. In deriving this restriction I am following the convention of calling a belief about the future true now iff in the future it will be true, even when its truth is not yet inevitable. This is a convention which we do not always follow when we talk of a belief 'not yet' being true. But if we do not count a belief whose truth or falsity is not yet inevitable, as not now being either true or false, then God's omniscience can be construed simply as having all true beliefs. I do not however think that it is any less simple to understand only beliefs whose truth value is inevitable as having a truth value, than to follow our more normal convention.
20. Thus Aquinas: 'Knowledge in God is not ... a disposition (*habitus*), *Summa theologiae* Ia.14.ad 1.
21. Thus Aquinas: '[God] sees everything at once and not successively' *ibid.*Ia.14.7.
22. That God is timeless has been the dominant theological view from at least the fourth century onwards. However, in my view the biblical authors thought of God as everlasting, and God's eternity has not been the subject of dogmatic definition. Nelson Pike's well-known book *God and Timelessness* (London: Routledge and Kegan Paul, 1970) concluded with his remark that he had not been able 'to find any basis for [the doctrine of divine timelessness] in biblical literature or in the confessional literature of either the

Catholic or Protestant churches' And it is disputable whether even all western theologians of the high middle ages were committed to an explicit doctrine of divine timelessness - see R. Fox, *Time and Eternity in Mid-Thirteenth-Century Thought* (Oxford: Oxford University Press, 2006.) As regards omniscience, although there are a number of biblical passages which - read in their natural sense - do imply that God does not know infallibly what God or humans will do (e.g. Genesis 6:6, Jonah 3:10, and Revelation 3:5 which implies that God may change what is written in the Book of Life), most biblical passages imply that God is omniscient in the more natural sense; and the vast majority of subsequent Christian tradition is committed to that view. However this matter has not been the subject of any definition binding on Orthodox, or any definition which might be regarded by Catholics as infallible apart from the statement of the First Vatican Council that 'all things are open and laid bare to [God's] eyes, even those which will be brought about by the free activity of creatures'. (See (ed.) N.P.Tanner, *Decrees of the Ecumenical Councils* (London: Sheed and Ward, 1990), 806.) However, The Council authorised no anathema against those who held a rival view; and (as far as I can see) this view is not mentioned in the 1992 *Catechism of the Catholic Church* (London: Geoffrey Chapman, 1994) which 'aims at presenting an organic synthesis of the essential fundamental contents of Catholic doctrine' (p.9).

23. For that familiar account, which may only be applicable to the later medieval, see my *The Christian God*, Clarendon Press, 1994, ch 7. For these thinkers God's simplicity was a matter of his not having parts, and all his essential properties being the same as each other and the same as God. I claim that God has no parts, and that (not having thisness) he is whatever instantiates his essential properties. I claim that God has just one essential property-everlasting omnipotence - together with the absence of a property. For a rather different account of Augustine's views on God's simplicity, see Brian Leftow, 'Divine Simplicity', *Faith and Philosophy*, **23** (2006), 365-380

24. See his *Value and Existence*, Basil Blackwell, 1979.

25. See my *The Resurrection of God Incarnate*, 2003, 44-5 for the obligation on a creator to share the suffering of those whom he causes to suffer for the sake of some great good. The argument which I use this point to develop here is that a good-producing physical object would have to produce a world with less suffering than would a good God who is prepared to share that suffering with creatures whom he makes to suffer for the sake of a great good.