MIND, COSMOLOGY, AND SUFFICIENT REASON
A VINDICATION OF RATIONAL THEISM

James F. Sennett
McNeese State University

ABSTRACT

This paper examines the differing attitudes of theists and naturalists toward what has been called the "Principle of Sufficient Reason" (PSR): the metaphysical assumption that every event must have a sufficient reason for its occurrence. I examine the role of PSR in naturalistic and theistic approaches to two problems in the philosophy of mind: the dualism/materialism debate and the analysis of free will. I then compare these approaches to naturalistic and theistic approaches to current debates over the Cosmological Argument. I show that the theistic commitment regarding PSR is consistent across these arenas of debate, while the naturalistic commitment to PSR fluctuates and even contradicts itself. It is my conclusion that the theistic approach to these issues is more rational than the naturalistic approach, since the latter, unlike the former, involves an unjustified shift in attitude toward PSR.

But nothing can be reduced from potentiality to actuality, except by something in a state of actuality.

--St. Thomas Aquinas
Nothing comes from nothing/Nothing ever could.
--Rogers and Hammerstein

1. Introduction

This paper examines the differing attitudes of theists and naturalists toward what has been called the "Principle of Sufficient Reason" (PSR): the metaphysical assumption that every event must have a sufficient reason for its occurrence. I will examine the role of PSR in naturalistic and theistic approaches to two venerable problems in the philosophy of mind: the dualism/materialism debate and the analysis of free will. I will then compare these approaches to naturalistic and theistic approaches to current debates over the Cosmological Argument. I will show that the theistic commitment regarding PSR is consistent across these arenas of debate, while the naturalistic commitment to PSR fluctuates and even contradicts itself. It is my conclusion that the theistic approach to these issues is more rational than the naturalistic approach, since the latter, unlike the former, involves an unjustified shift in attitude toward PSR.

One of the most bizarre twists (from a philosophical standpoint) in the above-mentioned debates over the Cosmological Argument is the degree to which PSR has come under attack by those wishing to refute the argument. I label this development "bizarre" because PSR, or something near enough to it to ramrod most versions of the argument through, seems, in other philosophical contexts, to be a *sine qua non* of philosophical and scientific inquiry. That all events have sufficient reasons why they, and no other events, occurred when they did strikes one as the unquestioned assumption that drives continued inquiry even in the face of seemingly recalcitrant obstacles to discovery. (In fact, as I will show below, it is actually a stronger claim, entailing but not entailed by PSR, that contributes to this drive.)

As I tell my Introduction to Philosophy students, if your mechanic told you that she could not find the reason for the noise your car was making, you would have little trouble accepting her surrender (though

you might then be in the market for a new mechanic!). But if she told you that there was no reason for the noise, that the car could be in exactly the same shape it is in now and the noise not occur, you would not accept that claim. You would think of her not simply as an incompetent mechanic, but as a mentally challenged buffoon. Yet when such a claim is made regarding the beginning of all physical processes, it is heralded as a serious and important philosophical treatise. That this move is suspicious is prima facie obvious. That such obviousness persists on examination is part of what this paper intends to show. (Of course, quantum mechanical considerations throw a conceptual monkey wrench into these musings, and introduce complications directly relevant to the issues at stake in the Cosmological Argument debates. I will have much to say regarding these considerations later in the paper.) Before beginning, I need to define several key concepts for the purposes of my argument. First, I consider any metaphysical view a physicalist one if it has the following implications: (i) every event with observable effects in the natural world is completely describable in physical terms; and (ii) every such event has only physical events in its causal history. So construed, physicalism does not entail that there are no non-physical objects or events. But it does entail that no non-physical objects or events have any causal influence on the physical world. (So the classical formulations of parallelism and epiphenomenalism could be physicalist positions.)

Second, I consider any theory of mind to be materialist if it entails that full descriptions of mental phenomena require no reference to any non-physical events.[1] Note that mind/body materialism is consistent with the falsity of physicalism. It requires only that there be no non-physical events effective upon mental phenomena -- not natural phenomena in general. Physicalism, on the other hand, entails materialism (given that there are any mental phenomena at all). It will be important to remember that I am not using the terms 'physicalism' and 'materialism' as synonyms, although they are so used in some contexts. 'Materialism', as I employ it, picks out strictly a type of theory in the philosophy of mind, while 'physicalism' picks out a type of general ontological theory.

Third, I consider any theory of freedom compatibilist if it entails that every free action has a determinate physical cause. All three elements of this description are critical. Compatibilism as I construe it sees free actions as caused, just like any other events in the natural world. They are not sui generis events that require some other kind of explanation (i.e., non-causal reasons) for their occurrence. Furthermore, their causal explanation is determinate. Given the causal history, there is no alternative to the action's occurring. Finally (an most importantly, for my purposes), the determinate cause is fully physical. In other words, the causal history plus the laws of nature entail the event's occurring. Its causal history makes reference to no non-physical events or objects.[2]

---

2. Physicalism and the Philosophy of Mind

Contemporary analytic philosophy of mind is rife with physicalism. And physicalism is most often understood to be in direct conflict with two classical positions in the philosophy of mind: interactive dualism in the mind/body problem and libertarianism in the free will/determinism debate. If interactive dualism is true, then mental events, many of which have observable effects in the natural world, satisfy neither of the above conditions: they are not fully describable in physical terms, neither do they have only physical events in their causal histories. The case is not quite so clear-cut with libertarianism. However, there seems at least prima facie to be some type of major conflict. After all, if libertarianism is true, then free actions are such that their causal history makes reference to an agent or to reasons in ways that seem to defy physicalist reduction.

It is no wonder, then, that the current bent toward physicalism has led almost all contemporary analytic philosophers away from dualism[3] and libertarianism and toward mind/body materialism and compatibilism. In fact, one suggesting a dualistic or libertarian approach may well find herself greeted with the same incredulity as she would were she to suggest a geocentric model for the solar system or an alchemy or phlogiston approach to chemistry. However, since "get real" has never been a sufficient philosophical retort, it behooves us here to ask how an attitude of such wholesale dismissal came to be, and on what grounds it can be considered justified.

One point seems crystal clear and unarguable. Neither dualism nor libertarianism has been dismissed because it has fallen victim to any once-and-for-all philosophical refutation. The removal of these theories from polite metaphysical company has been more gradual, and a good deal more insidious. They have, so to speak, simply fallen out of fashion. The combination of semi-plausible materialist and compatibilist theories and an empiricist bent that worships at the altar of Ockham's razor have undoubtedly contributed to this shift in attitude.

However, debates among physicalists regarding the correct theories of mind and freedom are as heated and unsettled as any in philosophy. There is nothing like a consensus view in either field, so a claim that dualism and libertarianism are not needed, that the philosophical issues can be resolved without them, lacks any real bite. Furthermore, any philosopher with much dialectical flight time logged has ceased long ago to be impressed by points based solely on an appeal to Ockham's razor. It is a weapon wielded with tenacity when it serves one's present purposes and conveniently forgotten or dismissed as so much empty rhetoric when it aids one's interlocutor. So we must look further for justification for the abandonment of dualism and libertarianism in favor of materialism and compatibilism.

It is often charged that dualism and libertarianism "collapse under the weight of their own implausibility," or some such allegation. But it is hard to determine exactly what such an accusation comes to. If it amounts simply to the claim that no dualist or libertarian theory has been proposed that wins the approval of the philosophical community in general, then materialism and compatibilism (together with virtually every significant philosophical theory of the post Renaissance period) likewise collapse. If it is to be read as the claim that the theories are open to obvious refutation, then we must ask where such refutations are. If it is best construed as the view that there are better theories to be had, then we must ask both what those theories are and how one defends the claim that they are better. (As we have seen, there are none that could appeal to general acceptance in the community -- even if we were to accept that such would be evidence that it is better.) Finally, if we are to understand the charge as saying that dualism and libertarianism are to be rejected because they conflict with physicalism, then we are free simply to reply "so much the worse for physicalism," and the ball is back in the naturalist's court.

---

3. PSR and the Philosophy of Mind

One might be tempted to think that materialism and compatibilism could be defended along empirical lines. But it is extremely difficult to specify what form such support might take. It certainly could not be straightforward inductive generalization. One could not argue for materialism, for example, as follows: "All mental phenomena examined so far have been found to have full physical descriptions; therefore all mental phenomena have full physical descriptions." Even if the inference here were a strong one -- a dubious claim at best -- the argument would still suffer from the deplorable flaw that its premise is patently false. So also with compatibilism. One could not simply drag out instance after instance of free action for which determinate physical causal explanation has been provided. The storehouse of such examples is quite deplete. Both analytic and empirical research in these areas is woefully lacking. Indeed, it is even unclear exactly what empirical evidence that such events have full physical causal explanation would look like.

But perhaps the empirical evidence should be viewed along more sophisticated inductive lines. Perhaps some concomitant variations case could be made. After all, neuroscience, psychology, cognitive science, and related disciplines do seem to give us ample evidence that there is very close correlation between brain activity and mental activity. One might argue that the more we learn about the brain, its stimuli, and its outputs, the more we are able to understand, predict, and explain mental phenomena. Such correlate increases in understanding surely provide strong evidence that, were we to know everything about the former, we would know all there is to know about the latter. And this, in turn, is good inductive evidence that mental phenomena just are physical phenomena.

This argument certainly holds more promise than the rather naive generalization argument offered before. However, it is far from convincing. In the first place, any dualist worth his salt will be quick to point out that there are any number of dimensions to mental phenomena for which there seems little hope of providing physical explanation. But more important is the problem that, to date, the amount of research done compared to the amount to be done is so infinitesimally paltry that any such monumental conclusions are certainly so far forth quite premature. There may well come a time when such an argument gains feasibility, but that time is well in the future, even if such is a physical likelihood or possibility. Certainly at present there exists nothing like the kind of correlative evidence needed to support so sweeping a claim.

And, besides, all of this is really beside the point. Research programmes in neurophysiology, cognitive science, and the like have not brought about the contemporary commitment to physicalist theories and the demise of dualism and libertarianism. Rather, such endeavors were by and large motivated by such commitments. It is because science and philosophy have come to the conviction over the past couple of centuries that mental life could be successfully described and studied in scientific terms that research has turned so single mindedly to such tasks. Not only is a priori commitment to physicalism required to make a good argument for materialism and compatibilism (since empirical evidence for them is sorely lacking); as a matter of fact it is clear that such commitment really is the explanation for how wholesale commitments to these views came about. In short, this a priori belief in physicalism provides not only the justificatory, but the genetic story for the current materialist and compatibilist cults in the philosophy of mind.

But here we must admit a conceptual truism. Physicalism all by itself is not enough to justify materialism or compatibilism. This is most easily seen in the fact that there are coherent antirealist positions in both debates. Eliminativists argue that no successful physicalist story of mental phenomena is forthcoming, though they are certainly as committed to physicalism as any good identity theorist or functionalist. And so-called "hard determinists," while holding with compatibilists to a thoroughgoing physicalism, nonetheless side with libertarians that the idea of compatibilist freedom is incoherent.

But even from a mental realist standpoint, physicalism is quite consistent with the claim that lots and lots of events have no causal explanation whatsoever, let alone determinate physical causal explanation. Consequently, there is nothing about physicalism per se that requires or even suggests that mental phenomena have any causal matrices to be uncovered. The most natural way to cover this gap (and, I would insist, the way that it is in fact covered for most physicalists) is by conjoining physicalism with some form of PSR. If PSR is true, then mental events and free actions must have full explanations for why they, rather than any other events, occurred. If physicalism is also true, those full explanations must come in the form of determinate causal explanations. So physicalism conjoined with PSR (and mental realism) gives us a good a priori argument for materialism and compatibilism.

Some may insist that physicalists have a way to justify these approaches without appeal to PSR. Perhaps what motivates them to seeking purely physicalist, causally closed accounts of mind and freedom is what we might call the Humean dilemma. All events in the physical world are either sufficiently causally determined or they are random (a premise consistent with the falsehood of PSR). Furthermore, nothing that is random can be thought of as under the control of any agent. However, since many mental events and all free actions are clearly under the control of the agents experiencing or producing them, it follows deductively that such events are not random and therefore fully causally determined.

But here we must ask why mental events and "free" actions are not simply dismissed as random events without sufficient physical causation. If such is a physical possibility (and it must be if the above argument is to escape commitment to PSR), then what makes us so sure that mental events and free actions don't fit into it? If the naturalist is to avoid a simple and unconvincing appeal to intuition, the answer has to be something along these lines: mental events and free actions display far too much order, structure, and predictability to be random and without explanation. But this, of course, is a very dangerous path for a naturalist to trod, since it leads inexorably into the teeth of the Teleological Argument. If order, structure, and predictability are evidence of a non-random, sufficient explanation, then the universe as a whole is providing evidence every day that it is neither random nor without explanation.

In fact, appeal to order, structure, and predictability in this case can be seen to aid the Cosmological Argument as well. After all, we do not observe the mental events or even the free actions (thought of, as Campbell suggests, as "inner" actions -- decisions or choices) themselves, but rather the effects in the physical world that such events have. So we do not infer from the order, structure and predictability of the mental events themselves that those events are not random but sufficiently explainable, but rather we infer that those events are so explainable from the order, structure, and predictability of their effectual consequences. So, if the order, structure, and predictability of the effectual consequences of a given class of events E are convincing evidence that the members of E are not random but sufficiently caused or explained, then the order, structure and predictability of the present state of the universe are convincing evidence that the Big Bang was not random but sufficiently caused and explained. This conclusion, by the naturalist's own admission, favors theism over naturalism. So this attempt to justify materialism and compatibilism without appeal to PSR is counterproductive for the naturalist. He'd best not go there.

But where else is there for him to go? There seems to be no other way to justify the claim that mental events are real and sufficiently caused by physical processes, not random, than by appeal either to the order, etc., of the consequences of mental events, or by appeal to something like PSR. Since the former leads to a serious conflict in the naturalist's position, the only place left for the naturalist is PSR.

So there are two crucial elements in the naturalist's embracing of materialism and compatibilism: physicalism and PSR. Together these doctrines entail an even stronger form of PSR, which I will call the Physical Causation Closure Principle (PCC): that all events have sufficient physical causal explanations. PCC is stronger than PSR in at least one very important way for our purposes. It specifies that the sufficient reason for any event's occurrence is a physical causal explanation. In other words, any event can be fully explained by appeal solely to physical events. PSR itself carries no such requirement. It is perfectly consistent with the claim that the sufficient reason for some events makes appeal to non-physical events, or even to agents. But when conjoined with physicalism such possibilities are removed, and the only way for an event to be sufficiently explained is by appeal to physical events.

Note that dualism is inconsistent only with PCC, not PSR. It is perfectly consistent with dualism that mental events have sufficient reasons for their occurring rather than some alternate mental event or no event at all. The only proviso is that such reasons will make reference to at least some non-physical events (hence PCC is false). In fact, it would be a gross misrepresentation of the best of dualistic philosophy to suggest that it is committed to the falsehood of PSR. So, while materialism requires not only the truth of PSR but of PCC as well, dualism requires only the truth of PSR. And, of course, by far the most popular theistic approach to the mind/body problem has been a dualistic one, while naturalism is virtually committed to a materialistic view of mind. So while both theist and naturalist make use of PSR in their approaches, the naturalist employs, while the theist rejects, PCC.

So also libertarianism, while inconsistent with PCC, is nonetheless perfectly consistent with PSR. In fact, so-called agent causation theories are motivated, at least in part, by desires to satisfy the constraints of PSR within the libertarian framework. The relative lack of success of such theories to date does not detract from the fact that libertarians need not reject PSR, and are in fact often moved by it. And, as before, theism will often move its adherents to libertarianism, while naturalists who desire to maintain some coherent notion of free will find themselves pulled inextricably to compatibilism. In both cases, then, theists follow a lead spurred on by PSR but in direct opposition to physicalism or PCC, while naturalists find themselves committed not simply to PSR but to PCC as well.

---

4. PSR and the Thomistic Cosmological Argument

I believe the above makes a good case for the claim that naturalists are committed to PSR (and, in fact, the stronger thesis PCC) if they are to provide adequate defenses of realist naturalistic approaches to the mind/body problem and the analysis of human freedom. However, naturalists seldom if ever appeal

explicitly to PSR or any such principle in these approaches. By contrast, it is crystal clear that naturalists must deny PSR and do explicitly deny PSR in their attempts to avoid conclusions with theistic (or at least supernaturalistic) overtones in the debates over the Cosmological Argument.

It has become customary to speak of the Cosmological Argument as coming in two different forms or versions, which I will call the Thomistic Argument or the Contingency Argument, and the *Kalam* Argument or the First Cause Argument. The former argues that a necessary being must exist given that contingent beings exist, and is most famously represented in the first three of Aquinas's "Five Ways." The latter argues that there must be a temporal beginning to the universe, and that such beginning requires a necessary being. This form is borrowed primarily from the Arabic philosophers of the Medieval period (Kalam being the Arabic word that came to refer to the Arabic scholastic movement).[4] It is telling that both versions of this argument have been attacked recently by naturalistic philosophers on the grounds that (i) the argument depends on PSR and (ii) there is either good reason to think PSR false or there is no good reason to think it is true.

William Rowe has presented an eloquent exposition and criticism of the Thomistic Argument, in which he demonstrates that this version actually employs two different (though compatible) conceptions of PSR.[5] "We may state PSR, therefore, as the principle that *there must be an explanation (a) of the existence of any being, and (b) of any positive fact whatever"* (p. 26, emphasis his) Rowe then shows quite convincingly that both PSRa and PSRb must be true in order for the Thomistic Argument to be sound. His dismissal of the argument, then, is based on a rejection, albeit a modest one, of PSR in either form. This rejection is based on the claim that neither of the two most common ways to defend PSR is convincing. (So his rejection is not a charge that PSR is false, but only that there is no reason to think that it is true.)

First, some claim that PSR is intuitively true. That is, "if we fully understand and reflect on what is said by PSR we can see that it must be true." But, protests Rowe, "a number of very able philosophers fail to apprehend its truth, and some even claim that the principle is false." Second, others claim that PSR must be accepted as "a presupposition of reason." That is, PSR is "a basic assumption that rational people make, whether or not they reflect sufficiently to become aware of the assumption." Rowe responds, "The fact, if it is a fact, that all of us presuppose that every existing being and every positive fact has an explanation does not imply that no being exists, and no positive fact obtains, without an explanation. Nature is not bound to satisfy our presuppositions" (p. 27).

Rowe's attack on PSR is open to three criticisms relevant to the purposes of the present paper. First, it seems that Rowe's criticism of the second defense of PSR can be turned against his criticism of the first. He protests that believing a proposition doesn't make it so. Fair enough. But it follows then that the mere fact that "a number of very able philosophers" hold either that PSR cannot be known to be true or that it is false does not make it true or even likely that PSR is either false or not known to be true. After all, by Rowe's own admission, seeing PSR to be intuitively true requires proper understanding and reflection. And this may be more than simply pondering or even turning an educated philosophical eye toward it in examination. It is intuitively true that there is no set of all propositions (by Rowe's definition of intuitively true.) However, the "proper understanding and reflection" required to grasp this intuitive truth is quite tricky, and is such that many well versed philosophers may have never grasped it. I have never grasped the intuitive truth of Godel's incompleteness theorem -- neither have many quite able mathematicians and philosophers. Yet intuitively true it is nonetheless.

In fact, the whole thrust of the first sections of this paper can be seen as pointing out one way in which the naturalist can reflect to grasp the truth of PSR intuitively. If it is false, then the naturalist has no way to defend his physicalistic approaches to mind/body and free will/ determinism without throwing the door open for non-naturalism and theism. Therefore, the naturalist should be at least as convinced of PSR as he is of naturalism.

A second problem lies in Rowe's criticism of the claim that PSR is a presupposition of reason. Rowe never argues that PSR is not a presupposition of reason; only that, even if it is, this is no evidence that it is true. So let us, with Rowe's apparent permission, assume for a moment that PSR is a presupposition of reason.

He defines such as "an assumption that rational people make, whether or not they reflect sufficiently to become aware of the assumption." I take this last clause to mean that a presupposition is something that can be (an perhaps most commonly is) assumed tacitly, i.e., without the conscious awareness of the person. How are we to understand this notion? It seems to me that the only way to argue that one tacitly assumes p is to show that one is committed to p -- that is, that one's beliefs or practices either entail p or require the truth of p to qualify as rational, justified, etc. So the only way I see to understand the notion of PSR as a presupposition of reason is that rational people qua rational people are committed to PSR.

Rowe claims that even if PSR is a presupposition of reason, this is no guarantee that it is true. Of this there can be no doubt. However, what does seem to follow is that no one can deny or even doubt PSR on pain of irrationality. So, insofar as the controversy over PSR is the only barrier to a successful Thomistic Argument (and Rowe does refute every objection to the argument he considers except this one), it follows that one cannot rationally reject the argument. That is, either one who understands the argument believes that there is a necessary being or such a one is being irrational. This is certainly not the conclusion Rowe was looking for.

In Rowe's defense I must point out that he is considering whether or not the Thomistic Argument succeeds as a piece of what we might call "Strong Natural Theology" (SNT). Natural Theology *simpliciter* has as its goal the construction of successful arguments for God's existence using only empirical or a priori premises. SNT would be the view that a Natural Theology argument is successful only if it can be shown to be sound. Now, Rowe is certainly correct to claim that PSR as a presupposition of reason does not show the Thomistic Argument to be sound. Nothing I have said suggests otherwise. However, consider the notion of "Modest Natural Theology" (MNT). MNT holds that a Natural Theology argument is successful if it shows that any rational person who properly understands and reflects upon the argument would be justified in accepting its conclusion and would be irrational in withholding judgment on or rejecting the conclusion. If PSR is a presupposition of reason (and there are no other problems with the argument), then the Thomistic Argument is a successful piece of MNT. And any contemporary theistic philosopher would be more than satisfied with this conclusion.

This all suggests my third criticism of Rowe, and that is that I think the proper way to think of PSR is as a combination of the two he suggests: intuition and presupposition. I would make the claim that it is intuitively true that PSR is a presupposition of reason -- at least in a world so immersed in scientific discovery, so awash in rational discourse and action, so aware of psychological, sociological, and historical developments. In a world in which we won't let our auto mechanics get by with "there's no reason," we can't let ourselves get by with it either.

---

5. PSR and Big Bang Cosmology

The Kalam Cosmological Argument has enjoyed a considerable resurgence in the past couple of decades, thanks primarily to the developments in theoretical physics that go under the rubric "Big Bang Cosmology." The connection between the Big Bang Theory and the *Kalam* Argument is not hard to see. Under older steady state cosmological models, it was not hard to understand the universe as temporally infinite, so that the infinite regression of events reductio move in classical versions of the Kalam Argument was blunted and ineffective. However, the Big Bang Theory seems to indicate a temporal beginning of the universe (though debates still rage, often hinging on the precise understandings of the terms "temporal" and "universe"!). Reenter the Kalam Argument, with its insistence that the beginning of the universe requires explanation and that explanation could only be some necessary being like the theistic God. Naturalists are then saddled with the task of showing why and how a temporal beginning to the universe carries no such implications.

Nowhere in the current literature is this debate more ably or exhaustively represented than in the interchanges over the past decade between William Lane Craig and Quentin Smith.[6] I will concentrate on

their debate for the purposes of this discussion. Instead of PSR, Craig and Smith actually consider what Craig calls "the causal principle": the claim that anything that comes into existence must have a cause for its existence (this claim is similar to Rowe's "PSRa"). While the causal principle is weaker than PSR, it is obviously entailed by it. Therefore, Smith's arguments against it constitute arguments against PSR as well. For the sake of consistency, therefore, I will continue to speak of PSR.

There is one significant difference in the Kalam Argument *vis a vis* PSR. Under current Big Bang Theory, the proto-state of the universe was something very much analogous to a quantum singularity. Therefore, it is open to the naturalist, prima facie at least, to argue that the universe is the result of some initial quasi-quantum indeterminate event, and is therefore not subject to the demands of PSR that it have a cause in God or anything else. It was a random, unexplained, uncaused event.[7] In fact, the phenomenon of quantum indeterminacy allows the naturalist to present a modified version of PSR that would seem to escape the dilemma for which I am arguing. Consider PSR*: *Every event other than a quantum indeterminacy must have a sufficient reason for its occurrence.* It would appear the naturalist is committed only to PSR* in her views on materialism and compatibilism -- a principle that would not require her, on pain of inconsistency, to postulate a cause for the beginning of the universe.

Contrary to this natural-looking move, however, quantum indeterminacy is no threat to PSR as it stands, and is not the escape the naturalist needs it to be. From an empirical standpoint, the claim that an event E at time t is a quantum indeterminacy can be taken to be no more than the claim that E's occurring at t is unpredictable in principle -- that is, that nothing we ascertain empirically, even in theory, can enable us to predict with certainty that E will occur at t. In other words, the probability that E occurs at t, given all discernible empirical data, is less than 1. But this entails only that E has no sufficient empirical reason for its existence; not that it has no sufficient reason at all. Let us call this weaker notion "quantum uncertainty" (cf. Heisenberg's "Uncertainty Principle"). PSR is perfectly consistent with quantum indeterminacy, and there is no need to introduce PSR* to account for it.

Of course, if naturalism is true, then the lack of any empirical reason for E's occurring at t entails the lack of any sufficient reason at all. So then, given quantum indeterminacy, it seems that either PSR is true or naturalism is false.[8] So far forth, then, the naturalist seems perfectly consistent in rejecting PSR in favor of PSR*. But we must ask her why she favors naturalism, at the cost of adopting PSR*, over simply granting PSR and denying naturalism. After all, as principles go, PSR* is really quite clumsy. Why should there be one excepted class, rather than a universal principle? Of course, the naturalist cannot respond that scientific research shows us that indeterminacy holds, and this justifies the exception Science shows at best that quantum uncertainty holds, and uncertainty is consistent with PSR. There seems to be no non-question-begging path to defense of preferring the clumsier theory over the simpler and more elegant one. And, given rational parity, principles such as Ockham's razor and the preference for simplicity -- so near and dear to naturalism and empiricism -- would seem to compel the acceptance of PSR. The dialectical quagmire for naturalism remains.

Besides all this, Craig points our that the analogy of quantum indeterminacy for the Big Bang breaks down at one critical point.

> In the case of quantum events, there are any number of physically necessary conditions that must obtain for such an event to occur, and yet these conditions are not jointly sufficient for the occurrence of the event. [...] The appearance of a particle in a quantum vacuum may thus be said to be spontaneous, but cannot properly be said to be absolutely uncaused, since it has many physically necessary conditions. To be uncaused in the relevant sense of an absolute beginning, an existent must lack any non-logical necessary or sufficient conditions whatsoever. Now at this juncture, someone might protest that such a requirement is too stringent: 'For how could anything come into existence without any non-logical necessary or sufficient conditions?' But this is my point exactly; if nothing existed -- no matter, no energy, no space, no time, no deity -- if there were absolutely nothing, then it seems unintelligible to say that something should spring into existence. (p. 146)

So even if the existence of the initial singularity is indeterminate analogous to quantum indeterminacies, there must be some antecedent conditions for its occurrence, and the *Kalam* argument rages on.

Smith argues for the uncaused nature of the universe from a slightly different angle, however. He concentrates on the nature of the singularity itself, rather than on its general characteristics as a quantum phenomenon.

Given that [the singularity is real], we can note that the classical notions of space and time and all known laws of physics... break down at the singularity, and consequently it is impossible to predict what will emerge from the singularity. This impossibility is not due to our ignorance of the correct theory but is a limitation upon possible knowledge that is similar but additional to the limitation entail by the quantum-mechanical uncertainty principle.

This means, precisely put, that if the Big Bang is the first physical state, then every configuration of particles that does constitute or might have constituted this first state is as likely on a priori grounds to constitute it as every other configuration of particles. In either case, the constitution of the Big Bang is impossible in principle to predict and thus is uncaused (for 'uncaused' minimally means 'in principle unpredictable'). (pp. 124f)

There are several problems with Smith's account. For example, Smith's contention that "uncaused" is to be equated with "unpredictable in principle" is quite problematic, and smacks of a verificationism that is philosophically untenable and that the theist is certainly under no obligation to accept. Craig does an admirable job of taking Smith to task for this (pp. 145ff), and I will not belabor his points here. Instead, I turn to Smith's employment of the notion of "*a priori* grounds."

It is unclear exactly what Smith means when he says that the Big Bang configuration of particles resulting from the singularity is "as likely on *a priori* grounds" as any other configuration. The whole notion of *a priori* probability is a muddy one, and arguments grounded in it are so far forth suspicious. But there are more or less accurate interpretations available to Smith. However, none of them does him any good.

The most natural interpretation of the notion is "probability given no background information at all," or (more accurately) "probability given only tautologies." However, Alvin Plantinga has provided an elegant and, it seems to me, inescapable proof that the idea that contingent propositions have such an a priori probability is incoherent.[9] Besides, this interpretation does Smith good only if tautologies are the only a priori truths. If there are synthetic a priori truths (as any good non-naturalist would content), then it may be precisely such truths that affect the probability of the constitution of the Big Bang.

Another possible interpretation of *a priori* probability is "probability given no empirical evidence." However, here again we must ask if Smith acknowledges synthetic a priori evidence or not. If he does not, then this interpretation reduces to the one above, for the only truths he would acknowledge are either empirical or tautologous. If he does, then it may well be those truths that distinguish the probabilities of the possible outcomes. Certainly if theism is true then the probability that the Big Bang particle configuration is such that it will result in an ordered universe producing sentient life is very high -- much higher than any configuration that would not so result.

There is one other possible interpretation of *a priori* probability -- so-called "epistemic probability," or probability given what one knows to obtain in a given situation. Smith does address this as a problem of what we know or even can know about the singularity. All classical notions of space and time, all laws of physics, and the very limitations of possible knowledge themselves fail us. Also, he climaxes his argument by equating "uncaused" with "unpredictable." So perhaps all Smith means is that there is no way that we can know or justifiably believe that one configuration of particles was more likely to proceed from the singularity than any other.

Smith is quick to protest that he is not simply talking about epistemic probability. He responds to Craig's criticisms of his equation of "uncaused" with "unpredictable," alluded to above, by insisting that "the unpredictability that pertains ... is an unpredictability that is a consequence of sheer lawlessness, not of human inability to know the laws. There is no law, not even a probabilistic law, governing the singularity

that places restriction on what it can emit" (p. 235). This objection can be applied to the question of a priori probability thus: by claiming that any particular configuration resulting from the singularity is a priori as likely as any other, Smith means to say that no laws exist -- deterministic or probabilistic -- that justify any prediction of one configuration emerging rather than any other.

But what kinds of laws fail to exist? Smith is quite clear a little earlier: "the Big Bang singularity behaves in a completely unpredictable manner *in the sense that no physical laws govern its behavior"* (p. 235, emphasis his). But why should the absence of physical laws bring about a priori probability parity? Again, the only possible answers would involve either the claim that no other laws exist, or that there is no basis other than physical laws on which to predict events. Both are either completely baseless or beg the question shamelessly against theism and every other form of non-naturalism. Unless by "unpredictable" Smith means "not even an omniscient God could predict," his point is question begging. But how could Smith support this understanding?

At best, Smith seems to have given us reason to deny that PCC is true, for certainly the Big Bang cannot be understood as having any physical cause, let alone a sufficient one. But this is hardly helpful. In the first place, theism is not committed to PCC -- in fact, it is committed to its denial. In the second place, the claim that PCC does not apply to the Big Bang follows trivially from the fact that the Big Bang singularity cannot be thought of as a physical object; hence the Big Bang itself is not a physical event. But there is nothing about any of this that suggests that there was no reason whatsoever for the existence of the singularity of the Big Bang configuration. Hence, nothing here is challenging to PSR.

In fact, in admitting that, given naturalism, no resultant configuration of particles is any more or less likely than any other, Smith actually opens the door for a fascinating theistic argument, wedding both Cosmological and Teleological Argument concerns in much the same way that current discussions over the so-called "Anthropic Principle" do. Let us call any universe that produces sentient life an "anthropic universe." Consider:

P1) A priori, there is no reason to prefer naturalism to theism, or vice-versa.

P2) The probability of the Big Bang producing an anthropic universe, given naturalism is no higher than that of it producing any other universe, or none at all.

P3) The probability of the Big Bang producing an anthropic universe, given theism, is very high -- perhaps approaching 1 -- and certainly higher than 1/2.

C) Therefore, given that the Big Bang did result in an anthropic universe, the probability of theism is much higher than that of naturalism.

This inference can be supported a number of ways, including Bayes' Theorem and standard scientific reasoning. But perhaps the most telling way in this context is by noting that it is virtually identical to the reasoning Smith himself uses in an argument he likes to run against theism. Smith argues that the probability that there would be a Big Bang singularity is higher given naturalism than it is given theism, since there are a variety of ways God could have brought about this (or any anthropic) universe, and since the improbability of an anthropic universe arising from the initial configuration of particles is so low (God would certainly have been more efficient) (pp. 200ff, 234ff).[10] The theist may accept Smith's inference pattern, but deny his premise concerning the probability of the singularity occurring if God exists. But Smith would be hard pressed to find a premise he could rationally deny among P1, P2, and P3.

So nothing in Smith's account gives us any reason to deny that PSR applies to the existence of the Big Bang singularity, the resultant Big Bang particle configuration, or any other critical event in the production of the universe. He gives us reason to deny PCC, but non-naturalists are already well supplied with such reasons. So consideration of the Big Bang offers no reason to reject PSR. This, coupled with its usefulness elsewhere in philosophy and science, as well as the contention that it is a presupposition of reason, lead to the conclusion that it is more rational to assume that there is a sufficient reason for the beginning of the universe than to deny it.

6. Conclusion

My argument is complete. In order to avoid the non-naturalistic implications of such theories as dualism and libertarianism, the naturalist must commit to PSR, conjoined with physicalism (hence, committing to the stronger thesis PCC) to justify adherence to materialism and compatibilism. However, in order to avoid the non-naturalistic implications of Big Bang cosmology, she must deny not only PCC but PSR itself. The theist, on the other hand, can cling unproblematically to PSR in both instances, since it does not conflict with dualism or libertarianism, and suggests a non-naturalistic or even theistic origin to the universe. Since naturalism requires an unjustified shifting of attitudes concerning PSR and theism does not, I conclude that theism is more rational in its approach to these issues than is naturalism.[11]

NOTES

[1]This is not the strongest form of materialism, which would include the condition that such descriptions require no reference to any non-physical properties. It is a major debate in the philosophy of mind whether or not certain theories (e.g., certain brands of functionalism) are committed to the existence of non-physical properties. Since I want to consider all such theories materialistic without begging this important question, I will retain the weaker view.

[2]Again, I bracket the question of whether or not it makes reference to any non-physical properties (see above note).

[3]For the balance of this paper I will use the term "dualism" to refer to interactive dualism or Cartesianism, the view that mental events are not physical and cause events in the physical world. As I mentioned above, while parallelism and epiphenomenalism are traditionally treated as dualist positions, they are technically consistent with the brand of physicalism I am concerned with here.

[4]William Lane Craig, *The KALAM Cosmological Argument* (New York: Harper and Row, 1979), p. 4.

[5]*Philosophy of Religion: An Introduction,* 2nd edition (Belmont, CA: Wadsworth, 1993), pp. 16-28. Rowe first addressed the argument in significant detail in *The Cosmological Argument* (Princeton: Princeton University Press, 1975) and in the first edition of *The Philosophy of Religion* (Wadsworth, 1978). His treatment and rejection of PSR in the 2nd edition, however, is a marked advance over and improvement upon that in these earlier works.

[6]Craig is, in fact, almost single handedly responsible for the resurgence of the Kalam Argument with the publication in 1979 of *The KALAM Cosmological Argument* (see note 4 above). Many of the most significant salvos in the war of words between Craig and Smith have been revised and reprinted together in William Lane Craig and Quentin Smith, Theism, Atheism and Big Bang Cosmology (Oxford: Clarendon Press, 1993). All parenthetical references for Craig and Smith in the text are to this volume.

[7]Apparently the best of Big Bang theories holds that there were actually a number of singularities and several "big bangs." In the current discussion I will sacrifice accuracy for simplicity and speak in the common vernacular of "the Big Bang." No critical points of this paper or the debate as a whole turn on this distinction.

[8]For the sake of simplicity I am bracketing so-called "epistemic" or "hidden variables" interpretations of quantum indeterminacy which hold that there are empirically ascertainable, but to date unascertained, data that hold the key to understanding the quantum behaviors.

[9]"Epistemic Probability and Evil," *Archivio di filosophia* 56 (1988). Reprinted in Daniel Howard-Snyder, editor, *The Evidential Argument from Evil* (Bloomington: Indiana University Press, 1996), pp. 69-96. The argument appears on p. 82.

[10]This basic argument is revised and incorporated into an ingenious (albeit, I'm afraid, ultimately unconvincing) argument Smith offers in "Simplicity and Why the Universe Exists," *Philosophy* 72 (1997): 125-132. See esp., p. 130.

[11]Thanks to William Lane Craig for helpful discussions regarding these issues, and to Quentin Smith for gracious provision of his work in progress. I am especially grateful to Smith for pre-publication access to "Simplicity and Why the Universe Exists."