Existence Puzzles and Probabilistic Explanations[*]

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ABSTRACT: Why is there something rather than nothing? Robert Nozick and Peter van Inwagen have proposed a probabilistic answer: there are more ways there could have been something than ways there could have been nothing; each has an equal intrinsic probability of obtaining; and so there being something is intrinsically more probable. The author presents a few original objections to this line of thinking, focusing especially on the kinds of probability it invokes. The author also sketches a more promising probabilistic answer, one that makes relevant relevant scientific and theological considerations that are usually quickly dismissed in this context.

1.

The question of why there is something rather than nothing is often framed as a question about concrete beings—beings that are spatiotemporal or dispositional: Why are there any concrete beings? Why does a world containing concrete beings obtain rather than one containing only abstract beings—an empty world?

Nozick (1981: ch. 2) and, at greater length, van Inwagen (1996) propose a probabilistic answer with a probabilistic argument. Here is a simplification of the reasoning that will do for our purposes:

> (1) There are more possible worlds containing concrete beings than worlds containing no concrete beings.
> (2) All worlds have an equal intrinsic probability of obtaining.
> (3) Therefore, there is a higher intrinsic probability of a possible world containing concrete beings obtaining.

Indeed, van Inwagen thinks that the probability of a world containing concrete beings is as high as can be—since there are infinitely many such worlds whereas there is at most one containing no concrete beings. Accordingly, the probability of the empty world is at most infinitesimal. We should hardly be surprised then that the alternative obtains. But perhaps there could be many empty worlds. So long as there remains a greater proportion of worlds with concrete beings the argument goes through. One advantage of the probabilistic answer over answers invoking necessary concrete beings is that it

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permits an empty world, something that finds some support in subtraction arguments (see Baldwin 1996).

I do not think the argument works though, and I set out to explain why. In section 2 I say a little about the first premise, before turning to the second premise in the rest of the essay. Section 3 is a preliminary about the kinds of probability that are and are not involved in the premise. Section 4 outlines and undercuts van Inwagen's argument for the second premise. Sections 5–7 address further objections against the premise. What emerges is that the premise is not motivated well, but that objections against the premise fail for just the reason that support of the premise fails. However, the premise is not rebutted, only undercut. Finally, section 8 sketches an alternative, and possibly more promising, probabilistic answer.

2.

Almost all the discussion of the argument focuses on the second premise. But we might wonder a little about the first. Van Inwagen thinks there have to be more nonempty worlds because there could at most be one empty world, since 'there is nothing in virtue of which two worlds that contained only abstract objects could be different' (1996: 101).

But it is easy enough to come up with candidates: for example, empty worlds could differ in the Platonic universals and possibilities they contain (see Mawson 2009: 43). Let's focus on world-specific possibilities. Let's take the idea that certain objects could not have been originally composed of a certain quantity of different material; for example, a ship originally constructed entirely of plastic would not be the *Titanic* even if it had been constructed in exactly the same way, at the same place and time. Now:

Assume that a ship could have been composed of only a certain percentage of different material—say, 10 percent, but the exact percentage does not matter. Consider a certain ship *S* in a world *W*. There is then a world *W1* containing *S1* composed of 10 percent different material from *S*, but *S* is identical with *S1*. There is a world *W2* containing *S2* composed of 10 percent different material from *S1*, but *S1* is identical with *S2*. Thus, *S* is possibly composed of 10 percent different material and is possibly composed of 20 percent different material. But if what is possibly possible is possible, *S* is possibly composed of 20 percent different material. That is contrary to the original assumption. We avoid the contradiction by denying that what is possible in one world is possible in all (see Lowe 2002: 110; Chandler 1976).

Here is an interesting way of spelling out how an empty world could differ in terms of possibilities: Molinism, the doctrine that there are contingently true counterfactuals about what agents would freely choose. Molinism is usually invoked to solve puzzles about divine foreknowledge and human free will. But it is as logically independent of the theological problem as it is of the possibility of ships. Perhaps there are worlds containing no concrete beings that differ in the true counterfactuals of free will they contain? In one of the worlds, if you *had* existed and were placed in such-and-such a situation, you would have made such-and-such a free choice, whereas in another world, you would have chosen otherwise. Besides such metaphysical possibilities, empty worlds could differ in natural laws and natural possibilities so long as natural laws do not depend on concrete beings.

Of course, there are always other ways of avoiding a contradiction. We could deny the possible existence of ships (à la van Inwagen 1990) as easily as we could deny Molinism and transcendent laws. But that maneuver is not obviously any *less* problematic.

If there is more than one empty world, do the floodgates open to there being as many as there are nonempty worlds? Mawson tries to salvage the argument in any case: 'For each empty world... there will be an infinite number of non-empty ones' with the same abstract beings as the empty world but 'each having some different set of things existent in them' (Mawson 2009: 44). Take an empty world containing the Platonic universal *A*. There will be a nonempty world containing *A* and one atom. And another nonempty world containing *A* and two atoms. And so on. Thus, the proportion of nonempty worlds will still be greater.

The conclusion will not follow if there are enough abstract beings that cannot exist together with concrete beings. Take an empty world containing the Platonic universal *B*, which could not exist together with any concrete being. Then there will not be a nonempty world containing *B* and one atom or a nonempty world containing *B* and two atoms, and so on. If there are enough such prissy universals, then there could be as many empty worlds containing them as nonempty worlds. There is at least one such abstract being: the fact of there being no concrete beings could not exist in a nonempty world. But could there really be so many abstract beings? If Platonic universals float around independently of concrete beings, then what difference should it make to them if there are also concrete beings? Excepting certain very negative beings, nothing at all.

In any case, Mawson's argument will not do. For there being infinitely many nonempty worlds for each empty world does not entail that the cardinality of the former class is greater than the latter. Compare: there being infinitely many real numbers in (0, infinity) for each real in (0,1) does not entail that the cardinality of the former is greater than the latter. But if the cardinality of the class of nonempty worlds is not greater than that of the class of empty worlds, then the proportion of nonempty worlds will not be greater. Thus, it does not follow from there being infinitely many nonempty worlds for each empty world that the proportion of nonempty worlds is greater. What we need is an argument showing either that the cardinality of the class of nonempty worlds is greater than that of empty worlds or that a uniquely well-motivated measure function assigns a greater measure to the class of nonempty worlds.[1]

Mawson draws a comparison with even numbers and prime numbers: if an integer is 'plucked at random from numerical space, the chances of its being a prime would be less than that of its being an even number'(Mawson 2009: 44). But this will not do either. For the relative frequency depends on ordering, and there is no privileged ordering. If the numbers are ordered according to the usual number line, then the probability of plucking out a prime will be much lower than that of plucking out an even number; however, if we order the numbers so that there are the first billion primes and then the first even number, the next billion primes and then the next even, and so on, the probability of plucking out an even will be much lower than that of plucking out a prime (compare Lewis 1986: 118–23).[2]

There is not yet any good reason for believing the first premise of the argument. However, the argument depends just as crucially on the second premise. I will follow precedent and focus on it from section 3 to section 7.

3.

There are a number of objections that might be leveled against the second premise. For a familiar kind of problem: there plausibly are infinitely many possible worlds, but there cannot be a probability distribution according equal probabilities to each of an infinite number of things (but there is no problem if we assign possible worlds different intrinsic probabilities, see section 8). However, I want to identify and develop a particular worry about the second premise. Before pursuing this, a word on what the premise means—particularly about the kind of probability that is involved. A couple of prominent kinds of probability *not* at work are *physical probability* and *epistemic probability*.

Physical probabilities measure how near or far a state of affairs is from being determined: physical probabilities of 1 or 0 mean that the state is determined to obtain or not to obtain respectively (pretty much, but see Hájek, n.d,), while values between 0 and 1 measure a propensity toward obtaining. The physical probability of a radium atom decaying in 5600

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[1] Measure theory helps frame the idea of one set being bigger than another even where they have equal cardinality; see Kotzen (2013) for a slightly less brief explanation and in the context of a discussion of van Inwagen's argument.

[2] Or imagine an infinity of game tiles in a hat—a very big hat. Each tile has another natural number in black on one side. Each tile with an even number in black has another prime in red on the other side; each tile with an odd in black has another nonprime on the other side. Now: What is the probability you will draw an even? What is the probability that you will draw a prime? Thanks to Hud Hudson for these illustrations.

years is 0.5, meaning that there is an equal propensity toward decaying as toward not decaying in that time.

Epistemic probability measures the extent to which a proposition is supported by evidence: epistemic probabilities of 1 or 0 mean that the proposition is certainly true or certainly false on the evidence, respectively, while values between 0 and 1 measure intermediate degrees of support. This is the kind of probability we are concerned about when testing how probable a hypothesis is on our evidence, for example. when detectives contend that the probability that Jones committed the murder is high given that his fingerprints are on the knife and his footprints are at the crime scene.

The kind of probability involved in the probabilistic answer cannot be physical. Physical probabilities are fixed by the dispositions of prior states. But there are no states prior to possible worlds. Could cosmological and theological postulates—universes beyond our own or a supernatural being—puncture the isolation of a world? No, at least not on the usual view of worlds—as comprehensive ways things could have been—since they would just be parts, big parts, of possible worlds, not beings standing outside of them. (Indeed, the absence of a prior state makes for a more general worry about the second premise: appeals to probability distributions usually do not by themselves make for a complete explanation of an outcome. For example, it is more likely that a die will land on some number higher than 1, but that is only a part of the explanation of why it lands as it does. The rest of the explanation is in terms of a prior state of affairs: it was rolled. If this model is generally correct, we could not have a complete explanation in our case: even if a world with concrete beings is more likely to obtain, there seems to be nothing that could roll the ontological die, as it were. There is no state prior to the possible worlds that could make any obtain.)

The kind of probability involved cannot be epistemic either: the epistemic probability that a world like ours obtains is as high as can be, and that is as evident as can be. This applies likewise to what van Inwagen calls *epistemic probability*, which is fixed by the odds an ideal bookmaker would be willing to bet that the state obtains (1998: 71; see Feldman [1995] for a potential problem with this way of doing things). Well, any bookmaker worth his salt would be willing to give any odds that a world containing concrete beings obtains. As decisively, epistemic probabilities cannot *explain* why a world like ours obtains—or pretty much anything else outside our beliefs.

The probability involved is instead of an intrinsic and more recondite kind. We need a kind of objective probability that is neither epistemic nor physical. It is a measure of a set of worlds in modal space; it would have to be something like what van Inwagen terms *alethic probability*:

> Let us suppose that some sets of possible worlds have unique *measures;* these measure the proportion of logical space (of the whole set of worlds) occupied by these sets... And let us further suppose that all of the sets of worlds in which we shall be interested in this essay are among those that have such measures. The alethic probability of a proposition is the measure of the set of worlds in which it is true. (1998: 72–73)

In our case, we are comparing the regions of modal space occupied by sets of empty worlds and sets of nonempty worlds, respectively. Van Inwagen describes the notion of probability at work here as 'thorny' (1998: 72). Some might find the notion altogether dubious. For the purposes of this paper, I grant it to van Inwagen; I want to focus on a less obvious objection that applies even if we grant the notion of an intrinsic probability. In the next section, we consider van Inwagen's arguments for the second premise and his argument for the existence of the relevant kind of probability along the way.

4.

Van Inwagen supports the view that all worlds have equal probabilities—our premise (2)—via an analogy of a computer flying out of an evaporating black hole:

> We'd then expect a hard disk that contained novels written in English, French, Urdu, and Esperanto to be about equally probable. (We'd expect the probabilities of each to be very close to 0, but not quite there, and very close to one another). And, surely, we'd expect this because we think that in the space whose points are maximal software states, blobs of about equal volume represent hard discs containing novels in French or Urdu... and, we think, the black hole is equally likely to produce any of the maximal states. (1996: 105)

The probabilities here are to be projected onto possible worlds: just as the states of the computer are each equally probable, so too possible worlds are each equally probable.

The analogy is false. The analog and target trade on different kinds of probability. The probability of the hard disk containing an English novel is an epistemic or physical probability. We are considering how much our evidence supports this (what 'we'd expect') or how much the prior state determines this (what the black hole is 'likely to produce'). But, as we have seen, the probability of a world obtaining is neither epistemic nor physical, but an intrinsic probability of another kind. There is, again, no question of how much any world is determined to obtain or how much our evidence supports the conclusion that it does.

Is there any way to get from epistemic and physical probabilities to intrinsic probabilities? Actually, van Inwagen's argument for the very existence of intrinsic probabilities suggests something. The argument postulates intrinsic probabilities to undergird epistemic probabilities—I mean, van Inwagen-style epistemic probabilities that have to do with the ideal bookmaker. This kind of probability:

> is not a 'ground floor' concept... Epistemic probability is to be explained in terms of the concept of a real, objective probability and some epistemic concept or concepts, such as the concept of rational belief. (van Inwagen 1998: 72)

We have to ask what makes it rational for the bookmaker to bet on odds less than 1 to 2 that a die will land 1, 2, 3, or 4: 'Why, exactly, would that be the rational determination of the odds I should accept?' (van Inwagen 1998: 71). The answer: because there are 'real, objective' probabilities, and they line up in the right way.

Very well then. But why suppose that this 'real, objective' probability is the kind of intrinsic probability we need? Maybe it is just a physical probability. If the physical probabilities line up in the right way, that would ground the epistemic probability of 2/3 that the die will land 1, 2, 3, or 4. There is the same moral when we formulate all this in terms of what we have called *epistemic probabilities*.

What we need is an argument from physical probabilities to intrinsic probabilities in turn. Try running the reasoning above here: intrinsic probabilities are required to undergird physical probabilities. Each way the die could land has an equal physical probability because each has an equal intrinsic probability. Or to bring us back to our original analogy: Each state on the computer has an equal physical probability because each has an equal intrinsic probability.

There are two problems with this move. First, prior natural states could have invested the die or the black hole with the propensities they have. No need to appeal to intrinsic probabilities then. If there is no such need, the argument for the existence of intrinsic probabilities does not go through, and there is a nagging worry that they might not even exist.

Second, states could have different physical and intrinsic probabilities. In a deterministic universe any state has a physical probability of 1—any state except for the original or any state whatsoever if there is no original state (that is not uncontroversial; but see Schaffer 2007). However, the intrinsic probability of these states is not 1; it is not necessary that they obtain. So physical and intrinsic probabilities need not line up. Thus, even if physical probabilities could somehow still undergird intrinsic probabilities, there is no guarantee that each state on the computer has an equal physical probability because each has an equal intrinsic probability.

For van Inwagen's purposes intrinsic and physical probabilities had better come apart. Kotzen frames the following counterinstance to van Inwagen's general assumption that the maximal states of any isolated system are equally probable (see van Inwagen 1996: 104). Imagine:

> an isolated system in which a fair coin is repeatedly flipped until it lands tails, at which point the system self-destructs. There are various maximal states of the system: (1) the coin lands tails on the first flip, at which point the system self-destructs; (2) the coin lands heads on the first flip and tails on the second flip, at which point the system self-destructs. (Kotzen 2013: 228)

And so on. If van Inwagen is right, each of these states has an equal intrinsic probability. But the first has a probability of 1/2, the second of 1/4, etc. So van Inwagen's assumption is outright false. Or say that what is at work here are physical probabilities: the system has a physical probability of 1/2 of surviving till the second toss, a 1/4 physical probability of surviving till the third toss, etc. But then physical and intrinsic probabilities come apart.

5.

Kotzen (2013) provides a few illustrations fitting with van Inwagen's way of doing things and others that do not. Here is just one of the nots:

> STRINGS. You hear two string theorists debating about string theory. One of them holds a theory on which space-time has a total of 10 dimensions, whereas the other holds a theory on which space-time has 26 dimensions. You think to yourself, 'There are a lot more ways for space-time to be arranged if space-time has 26 dimensions than if it has 10 dimensions.' So, you continue, it is more likely that space-time would have 26 dimensions than that it would have 10 dimensions. Later, the scientific community comes to agree that the 26-dimension version of string theory is true. You think to yourself, 'That makes sense—the fact that there are so many more ways for a 26-dimensional spacetime to be arranged than for a 10-dimensional spacetime to be arranged explains why spacetime is 26-dimensional rather than 10-dimensional'. (Kotzen 2013: 223)

Of course, that is absurd. The moral Kotzen draws from such cases—along with well-known paradoxes about the principle of indifference—is that we are justified in assigning equal probabilities to possibilities only when we have a posteriori grounds—which we do not have in the above case or in the case of possible worlds (compare Hemmo and Shenker 2010).

So far we have shown only that premise (2) is not well motivated. But Kotzen (2013: 229) has another kind of skeptical objection against assigning possible worlds equal probabilities. Consider a global skeptical scenario: you are a brain in a vat. Or consider a skeptical scenario about induction: the sun does not rise tomorrow. If van Inwagen is right, worlds containing skeptical scenarios and worlds containing nonskeptical scenarios have equal intrinsic probabilities. And why think there are more worlds containing nonskeptical scenarios than worlds containing skeptical scenarios? How then can we say that we are more likely in a world containing a nonskeptical scenario? (This is something like the well-known skeptical problem that arises for Lewis [1986], whose worlds are each as probable as concretely real.)

I have no idea how much mileage can be gotten out of this skeptical problem. I take it that most skeptical arguments try to show that skeptical scenarios are no less likely than nonskeptical scenarios. Can the usual answers to the skeptical problems then apply to the problem of skeptical worlds? Not answers appealing to the greater intrinsic probability of worlds containing nonskeptical scenarios. But then those are not the only kinds of answers. Maybe the objection works, but it must entangle us in the whole skepticism debate. So I do not want to bank on it.

6.

Let's turn to another way of rejecting premise (2). Leibniz presses the puzzle of existence on the presumption that the simplest world is most likely to obtain: 'the first question we have the right to ask will be, *why is there something rather than nothing*? For nothing is simpler and easier than something?' ([1714] 1989: 210). Apparently, Leibniz thought that all is not equal.

If all is not equal, there is something to be said for Leibniz's line. There is something about simplicity. Simpler explanations are preferred to more complex ones *ceteris paribus*. If Smith's footprints are at the crime scene and his fingerprints on the murder weapon, the best explanation is that he committed the crime. But of course there are alternatives: think of other *more complex* stories on which he is framed by Jones and Brown. And scientists prefer the simplest theories fitting with the evidence too. Could a preference for simplicity be built into reality at the most fundamental level—so that simpler worlds have higher intrinsic probabilities?

If so, then the probabilistic answer is in trouble—and not just because premise (2) turns out to be false. For, as Leibniz recognizes, the empty world is the simplest world. It contains fewer beings and fewer kinds of beings—supposing that the absence of concrete beings does not necessitate the existence of more abstract beings. The emptiest world would then be the most probable. That can be read in two ways: the empty world could be (1) more probable than the sum of all other worlds or (2) more probable than any other world, but not more than the sum of them all. The first reading means that the *conclusion* of the probabilistic answer is false. And note that when we do accept the simplest explanation, we take it to be more probable not only than any particular alternative, but also more than the disjunction of them all.

If Kotzen is right, we are no more justified in assigning worlds equal or unequal probabilities in the absence of empirical evidence. That is not something van Inwagen can help himself to. He has another response: simpler worlds could be more probable only if there is something beyond the system of worlds and that selects which is to obtain—a 'precosmic selection machine' (van Inwagen 1996: 107) that prefers simplicity. Of course, there is nothing beyond the system of possible worlds that decides which obtains.

The response will not do. Why assume that the higher probability of simpler worlds requires something beyond the system of worlds? Presumably a more equal assignment of probabilities does not require something beyond selecting in a more egalitarian way. But if there could be a more equal assignment without something selecting in an egalitarian way, why could there not be a less equal assignment without something selecting in a biased way? The higher probability of simpler worlds need no more require something beyond the system of worlds than their equal probability would.

There is more up van Inwagen's sleeve: 'an example that may militate against the intuition that the simplicity of the empty world entails that the world is more probable' (1996: 108). Consider a big political rally, thousands of revolutionaries being assigned positions along with red or white sheets so that when they display the sheets a portrait of Mao appears. Counterrevolutionaries sabotage the events, randomizing the assigned positions. Now:

> What should we expect those present to see when the signal was given and they looked in at the area in which a portrait was supposed to appear? No doubt what they would observe would be a pink expanse of pretty uniform saturation. The following argument has no force at all: pure white (or pure red) is the simplest of the maximal states of the system, so it's more probable that we'd see pure white (red) than pink or a portrait of Mao or a diagram of the structure of the paramecium. (van Inwagen 1996: 108)

The analogy will not do though. There is something disanalogous between the states of the rally and possible worlds. The states of the rally are not as isolated as possible worlds are; the states of the rally are subject to influence from without, whereas possible worlds are not. As van Inwagen himself recognizes, the rally 'is not isolated and cannot be regarded as isolated even as an idealization; for each participant is given, along with his red or white cardboard sheet, a seat number, and is instructed to take great care to sit in the seat with that number' (1996: 108; for a less salient disanalogy see Carlson and Olson 2001: 211–12).

This difference matters. It gives rise to the kind of problem we have just seen in the case of the computer flying out of the black hole: what kind of probability do we have in mind when we are asked what we 'expect those present to see'? Our expectations about the rally owe to our thinking about physical or epistemic probabilities rather than intrinsic probabilities. So it does not bear directly on the kind of probability we are concerned about. Since the system is not isolated, we are likely to think of the probability in light of the sabotage—a physical or epistemic probability that is not the intrinsic probability of a perfectly isolated rally, say, a possible world that consists entirely of a rally. Do we have any firm intuitions about how such a rally turns out?

7.

The strategy I am pursuing actually helps the probabilistic argument avoid one problem. I call it the *weird worlds problem* (compare Carlson and Olsen 2001: 209–10). Consider two possible worlds. They each contain a universe persisting for trillions of years and consisting of trillions of stars. The stars all have heavily weighted propensities of exploding within a million years; each has a physical probability of exploding equal to 0.99. In one of the worlds, *W1,* stars explode as would be expected, but in the other world, *W2,* no star ever explodes. Unlikely given the propensities, but still possible. If all worlds have equal intrinsic probabilities, then these two do. But do they? Does not *W1* have a greater probability of obtaining than *W2*?

However, we might be misled by physical probabilities here. Given the propensities, in both *W1* and *W2* stars have a greater physical probability of exploding. That is right. And that might be all there is to it. Does *W1* have a greater intrinsic probability than *W2*? Not obviously.

Mawson presents a similar line of reasoning but without any potentially misleading propensities:

> Consider this. There is a logically possible world with nothing but a universe in it that is like ours. Epistemically speaking... this logically possible world may be the actual world. There is also a logically possible world with nothing in it but a universe that is like ours except that every fundamental particle in that

> universe has written on it in Times Roman tiny-sized font, 'This particle created by the God of Classical Theism.' In this latter world, scientists have... just discovered this message written on a large sample class of these particles, let us say 100,000, and made their results widely known. The latter world is surely immensely more unlikely than the former. (2009: 45)

However, we might now be misled by epistemic probabilities. The epistemic probability of our finding messages on particles is extremely low. And that might be all there is to it. To be sure, Mawson further objects that van Inwagen 'would have no way of explaining why it is that people living in the latter world... have more reason than us to believe that there is a God'. But why think that? Here is one way they could have more reason: messages like this usually come from agents, and no human agent can write on such a small scale.

I think Lowe levels essentially the same objection as Mawson against premise (2) when he points out the 'odd' implication that 'a world consisting purely of pink elephants floating in custard is inherently no less probable than the world we actually find ourselves in' (Lowe 1998: 250). The threat is removed when we consider more carefully the kinds of probability that might be involved in such cases, but the same consideration also removes crucial support for the argument.

8.

While the argument promises to explain why a world containing concrete beings obtains, it might seem to deepen another puzzle. For if the probability of any particular world is infinitesimal, then the probability of our world is infinitesimal. Indeed, if we do not allow infinitesimal probabilities in this context, then the probability of any particular world, such as our own, is 0 (compare Lowe 1998: 251). Our possible world could not be any closer to impossible. Why then did it obtain?

Other answers to why there is something rather than nothing do better on this score. A Spinozism that has ours as the only possible world would answer all our questions at once. The view that there is a necessary being—like God or an axiarchic principle (see Leslie 2001)—that favors a universe like ours would also do better. However, I will conclude with a sketch of a new probabilistic answer that does not assign our world an infinitesimal probability or a probability of 0. The new answer faces some of the same problems as the original does; for example, it too depends on the notion of intrinsic probability. But *if* this can be granted for the original answer, then it can be granted for the new answer. The answer takes on Leibniz's question about why there is something rather than nothing as well as his worry about an empty world being 'simpler and easier' than a nonempty world—indeed, it is motivated by his worry. (To be sure, the new answer is not Leibniz's answer, which is in terms of the necessary existence of God [see Leibniz ([1714] 1989: 210)]).

The answer depends on some worlds being *fundamentally simpler* than others. Some parts of a world are plausibly more fundamental than other parts: the most fundamental parts of the world would plausibly include its initial or boundary conditions and its basic natural laws. And some such conditions are plausibly simpler than others: there being only one original particle would plausibly be simpler than there being 47,000 original particles, others things being equal.

Now assume fundamentally simpler worlds have higher intrinsic probabilities. So an empty world would have the highest probability. But ours need not be so low down the pecking order of simplicity. While our world is complex in some ways, it might be simple in others and simpler at the fundamental levels: the complexity could arise from very simple original conditions or basic laws. So while our world will be less probable than the empty world, it might not be so improbable after all.

Simplicity at the fundamental level is often what matters. Scientists are not afraid to postulate lots of things so long as at a more fundamental level things are unified enough. For example, biologists postulate a whole evolutionary history, with many different kinds of organisms and events. But the evolutionary hypothesis points to a few *fundamental* principles and original organisms to make sense of a far more diverse history of organisms and events. Physicists postulate a whole invisible world of particles of many kinds. But the hypothesis points to a few *fundamental* principles and particles that make sense of a far more diverse array of macroscopic phenomena. And they advertise the simplicity of the theories at the relevant level as a reason for believing the theories.

We might try to make sense of their preferences in terms of the intrinsic probabilities of possible worlds. The proposal is that fundamentally simpler worlds have higher intrinsic probabilities: simpler things at the fundamental level are more intrinsically probable. The proposal can make use of the sort of considerations van Inwagen employs: Why do scientists prefer simpler theories? Why are simpler theories more epistemically probable? Because they are more intrinsically probable; the intrinsic probabilities 'undergird' the epistemic probabilities. The proposal also avoids some of the problems besetting van Inwagen's theory; for example, there is no problem of an equal probability distribution among infinitely many things. More relevant to our particular objection, physical probabilities do not always threaten to preempt the work of our intrinsic probabilities if in some cases there cannot be physical probabilities at work.

And some scientists do take their theories to be more epistemically probable even where there is no possibility of a physical probability undergirding that epistemic probability.

Scientists prefer simpler theories when it comes to the initial conditions and basic laws of the universe too—where there are no prior physical conditions. Indeed, some cosmologists even advertise their theories as explanations of how our universe or even multiverse arose from 'nothing' because the original state was so simple, even if a little more than literally nothing (see Krauss 2012). Here is a bit of a cartoonish description: there is a simple initial physical state and a simple law to the effect that simple physical states tend to be unstable and give rise to more complex states; that is how the very simple original conditions give rise to our more complex universe (see Wilczek 1989; Stenger 2007: 135).

Some philosophers think they can do better with a spiritual being. Again, a bit of a cartoonish description: God is simpler than any original physical state—a single being with no arbitrary limits to its power and goodness—but such goodness will be diffusive and so will bring about a more complex universe (see Swinburne 1991). Of course, we need to add much more detail to make either the scientific or the theological theory more plausible, but their proponents do put in the effort. Whether any is successful is beyond the scope of this essay. But on either the scientific or the theological theories, no prior physical probability can be at work: the conditions described are supposed to be fundamental.

However, there would remain some fundamental being on the scene, whether physical or spiritual, that they have not yet explained. Thus the usual criticism is that the scientific and theological answers do not explain why there is anything at all rather than absolutely nothing (see Albert 2012). But, on the proposal at hand, since a world with just such a fundamental being would be simple at the fundamental level, its obtaining would not be so intrinsically improbable. Again, whatever the fundamental concrete conditions were, a world containing them would be less intrinsically probable than an empty world, if such a world is possible. There is a puzzle then about why a nonempty world obtains. But if the fundamental conditions are simple enough, then a world containing them need not be very improbable. The puzzle is a little reduced. Sometimes the improbable happens, especially when it is not very improbable. Thus Swinburne:

> It remains passing strange that there exists anything at all. But if there is to exist anything, it is far more likely to be something with the simplicity of God than something like the universe with all its characteristics crying out for explanation without there being God to explain it. (1991: 288-9; see also Swinburne 2004: 336).

The proposal we are considering is whether such a thought might also answer the question of why there is something rather than nothing. The prospects of such an answer depend upon (i) whether the intrinsic probabilities of worlds are proportional to their simplicity at the fundamental level, and (ii) whether our world is fundamentally simple enough.

That too is beyond the scope of this essay. But note how the proposal salvages the relevance of science and religion to the question. We usually quickly dismiss answers of why there is something rather than nothing invoking of the quantum vacuum or God: the question has just been pushed back a step; however much like nothing such beings are, if they have causal power enough to bring about our universe, then they are just the kind of thing the question is about. However, plugged into a probabilistic kind of argument, these answers can go a little further. Science or religion could be a part of a philosophical answer to the question of why there is something rather than nothing.[3]

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