

# An Explanation for Everything

## Abstract

I show how there could be an explanation for every fact (or state of reality). I begin by giving a probabilistic argument in support of *explanation maximalism*—the thesis that every fact (state of reality) has an explanation of some sort. I then defend the thesis against classic and contemporary objections. In the final section, I point out a strategy for finding an adequate restricted, back-up principle of explanation, in case one simply cannot accept the unrestricted principle. My overarching goal is to discover whether there is a sufficiently general principle of explanation that can account for the many instances of explanation we encounter.

# An Explanation for Everything

## 1. Introduction

Scientific inquiry is often thought to presuppose some principle of explanation, such as that states of reality are preceded by prior explanatory states. But could *every* state have an explanation? Leibniz famously thought so: for him, every state (or fact) enjoys a *sufficient* explanation (one that entails its explanandum)—hence, his *principle of sufficient reason*. Many philosophers, however, reject Leibniz’s principle because it is thought to imply that everything is necessary.<sup>1</sup> But even if not everything is necessary, it remains wide open, and underexplored, whether everything has *some* explanation, be it sufficient or not. Could there be explanations all the way down?

I will explore the prospect of an affirmative answer. I’ll begin by introducing a probability-based argument in support of the hypothesis that every fact has some explanation, where by ‘fact’ I mean any state of affairs that obtains. I will then consider important objections based upon alleged counterexamples. In the closing section, I will apply the general argument strategy to support various restricted, “back-up” versions of the explanatory principle. My end goal is to find a principle of explanation that best accounts for the instances of explanation we encounter in ordinary experience.

## 2. The Probabilistic Argument

Let ‘explanation maximalism’ name the following hypothesis: every fact whatsoever has an explanation of some sort. I will sketch a probability-based argument to motivate explanation

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<sup>1</sup> See Ross 1969: 295-304, van Inwagen 1983: 202-4 and Rowe 1998: 103-11 for representative instances of this objection. But see Pruss 2006 for replies. Cf. Della Rocca 2010, where Della Rocca defends the principle of sufficient reason, while conceding its necessitarian implication.

maximalism. The argument will roughly be that explanation maximalism provides the best (most likely) ‘explanation’ of particular cases of explanation. The argument is by no means decisive, but I offer it as a way of motivating the further inquiry into whether the best objections to explanation maximalism succeed.

Here are a few preliminary considerations upon which I will build my argument. First, when I use the term ‘explanation’, I do not mean to convey any particular theory of what explanations are or what kinds of explanations there can be. Rather, I intend to express whatever it is people express in ordinary language when they talk about certain facts explaining certain other facts. I assume that the term is pre-philosophically intelligible.

Second, it seems facts of many kinds are thought to have explanations in an ordinary sense. So, for example, biologists propose explanations of various biological facts. Sociologists offer explanations of various facts about cultures. Cosmologists offer explanations about various facts about our cosmos. In ordinary language, we find proposed explanations of big things, small things, strange things, people, places, particles, propositions, and virtually everything else we’ve encountered in heaven and on earth. In all these categories there are candidate conditions or states or facts that explain, in some sense, why the facts to be explained obtain. Of course, there are facts whose explanation is not apparent. But leave those to the side for now. I assume here just that there are many facts of many kinds that have an explanation.

Consider, next, that explanation maximalism is a relatively simple principle. The principle connects the relatively simple property, *being a fact*, with the relatively simple property, *being explained*. It says that the first *implies* the second: i.e. whatever has the first property has the second. Incidentally, there does not seem to be a simpler hypothesis that accounts for all the cases of explanation. Moreover, explanation maximalism would seem to be

at least as simple as any *alternative* (mutually exclusive) hypothesis. So, if simplicity counts in favor of a hypothesis, then it seems explanation maximalism has much in its favor. Of course, simplicity isn't the only factor to consider when evaluating the prior probability of a hypothesis. But in the absence of reasons to think explanation maximalism is defective in other ways, the simplicity of the theory suggests that the *prior* probability of explanation maximalism is not extraordinarily low. That is to say, prior to any evidence or argument for or against explanation maximalism, one need not be surprised to discover that explanation maximalism is true. I am not suggesting here that the prior probability of explanation maximalism is *high*. I suggest just that (E) doesn't appear to wear great improbability on its sleeve.

From the above considerations, we may construct what I call 'the Probabilistic Argument'. To start, let *E* be explanation maximalism, and let *D* be the fact that there are many facts of many kinds that have an explanation. Let *K* be our shared background knowledge, whatever that might be. Then we may outline the Probabilistic Argument as follows:

(1)  $\Pr(D/K\&E) = 1$ .

(2)  $\Pr(D/K\&\sim E) \neq 1$ .

(3)  $\Pr(E) \neq 0$ .

(4) Therefore, *D* supports *E* (i.e.  $\Pr(E/K\&D) > \Pr(E/K\&\sim D)$ ).

Let us consider each premise in turn. Premise (1) asserts that the conditional probability of *D* on *K* & *E* is 1. I am thinking of the probability here as *epistemic*—roughly, the degree of credence one rationally should have about the truth of a given proposition. The *conditional* epistemic probability expressed by (1), then, is a measure of the degree to which the hypothesis that *all facts have an explanation* together with our background knowledge should *of itself* rationally lead one to expect that *facts of many kinds have an explanation*.

My argument for (1) is based in part upon a stipulation that a conditional has probability 1 if it is (i) strictly logically necessary and (ii) plainly so. Such a principle is epistemically secure. If you think there can be a more secure principle, then replace “1” in my argument with whatever probability should be associated with a principle that meets (i) and (ii). What matters for my purposes is just that the conditional expressed in premise (2) is *less* secure than the conditional expressed in premise (1). Now the antecedent of the conditional in (1) includes our background knowledge that facts of many kinds have an explanation. Therefore, the conditional is strictly logically necessary, and plainly so. And therefore, the conditional in (1) is secure.

Premise (2) is quite plausible, I think, when one considers that its conditional is neither strictly logically necessary nor plainly true. Thus, it isn’t as secure as the conditional in (1). It has a lower epistemic probability.

Premise (3) is to be interpreted as saying that the *prior* probability of explanation maximalism is not zero. My own sense is that the prior probability of explanation maximalism is no less than the prior probability of its negation. But to achieve a more modest conclusion, I only require the premise that explanation maximalism is not certainly false. A full defense of this premise will require that I consider candidate objections to explanation maximalism. Thus, my strategy in subsequent sections will be to show that the objections to explanation maximalism are far from decisive.

From the probability premises, we may use Bayes’ theorem to deduce the conclusion that the many cases of explanation supports—raises the probability of—explanation maximalism. We could also infer the bolder conclusion that explanation maximalism is probably true, *if* the degree to which *D* is more likely on explanation maximalism than on its negation is itself greater than the degree to which *E*’s prior probability differs from the prior probability of its negation. The

relative simplicity of  $E$  may help support this further judgment, as may my defense of  $E$  in the sections to follow. However, since different readers will tend to estimate the prior probabilities differently, I leave this bolder conclusion as merely a further option for consideration.

### 3. Counterexamples

Are there counterexamples to explanation maximalism? If we can show that there are, then the Probabilistic Argument in support of explanation maximalism is defeated. In this section, I will examine what I take to be the most challenging candidate counterexamples.

#### 3.1. Quantum Mechanics

One sometimes encounters the objection that Copenhagen's interpretation of quantum mechanics reveals a world with unexplained facts. So, for example, the exact time at which an atom decays is not *determined* by prior states, and one might think that the time of decay is therefore unexplained. Call this 'the Indeterminacy Objection'.

It is worth noting that the Indeterminacy Objection arises even if Copenhagen's interpretation turns out to be false. The objection really only requires that indeterminacy is *possible*. The thought here is that if explanation maximalism is true, then explanation maximalism is necessarily true. (Here is an argument for that: if explanation maximalism is *not* necessarily true, then explanation maximalism itself lacks an explanation, for the only adequate explanation of the fact that every single fact happens to have an explanation is that there *can't be* unexplained facts.) And if explanation maximalism is necessarily true, then explanation maximalism should be true even in indeterministic worlds. So, if explanation maximalism is actually false in indeterministic worlds, then explanation maximalism is false in our world, too.

The Indeterminacy Objection requires a few assumptions. Suppose that our world is indeterministic in some way: suppose, for instance, that there is a complete physical state *A* and a subsequent complete physical state *B*, such that *A* doesn't determine *B*. Then *B* lacks an explanation *only if* all of the following are true:

(I1). The indeterminacy in question is ontological (no hidden variables or forces).

(I2). There is no deterministic explanation between *tokens* of types *A* and *B*.

(I3). There is no *indeterministic* explanation of *B*.

Much could be said about each of (I1) – (I3), but let us put the first two aside. Here I wish only to focus on (I3). The rationale behind (I3) is the premise that every explanation *necessitates* its explanandum. Why accept that premise?

Consider that we routinely *talk* about non-necessitating explanations. For instance, I ask my three-year-old son why he is crying. He answers, "Because my stomach hurts." It may seem that the fact that his stomach hurts explains, *in some sense of explains*, why he is crying. Yet, clearly the fact that his stomach hurts doesn't *necessitate* that he cries: possibly, his stomach hurts and he resists tears. So, perhaps our talk about explanations provides evidence that we recognize a non-necessitating form of explanation.

One might object, however, that examples of non-necessitating explanations really only feature *partial* explanations. My son's stomach pain doesn't *fully* explain why he is crying. In order to get a full explanation, one must add additional facts, such as that he doesn't want to resist tears, among other facts. Once all the relevant facts are joined together, they form a complete explanation that entails that my son cries. The objection here, then, is that indeterministic explanations are incomplete and so don't count as genuine explanations.

(Alternatively, one might suppose that these additional factors are actually *implicit* in the original explanation given.)

I will offer two considerations in response. First, the possibility of indeterministic explanations may help make sense of the possibility of free, rational actions. Suppose, for instance, that Sue rationally decides to eat some watermelon. Since her decision is rational, she presumably made the decision *on the basis of reasons*, and those reasons serve to explain, in some sense, her decision. Furthermore, it may seem perfectly possible for Sue to perform a rational action without her action being necessitated by prior conditions; you might think this is required for genuine freedom.<sup>2</sup> If such indeterministic rational actions are indeed possible, then indeterministic explanations would be possible. The possibility here opens the door to other indeterministic explanations, such as probability-based explanations, which can apply to quantum events.

Not everyone will accept this view of rational agency, of course. Some philosophers may object that free actions are ultimately impossible, or that truly rational actions must be *deterministically* explained. My first reply will appeal only to those who are sympathetic to the idea that there could be free, rational actions that are indeterministically explained.

My second reply is more concessive. I suggest that even if indeterministic explanations aren't *full* explanations, they may still count as explanations in some partial sense. Perhaps in some contexts we want necessitating explanations. Yet it seems that in many ordinary contexts, we are perfectly content to cite non-necessitating explanations. The explanations might not count as full or complete explanations. But we could still consider them as *partial* explanations. Partial explanations are still explanations, in some significant sense, one might think. To be clear, I am

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<sup>2</sup> And even if freedom is compatible with determinism, one might think freedom is *also* compatible with indeterminism.

not suggesting that a partial explanation explains a mere *part* of the explanandum. The pain in my son's stomach doesn't explain any particular part of the fact that he is crying; it explains, *to some extent*, the whole fact.

Let us suppose, then, at least for argument's sake, that some (partial) explanations don't necessitate their explanandums. We may then suppose that quantum events are indeterministically explained by prior states. So, for example, it could be that state *A* has a certain propensity to lead to state *B*, such that *if B* arises from *A*, then *A*'s having that propensity provides an indeterministic and incomplete explanation of *B*. This situation isn't obviously incoherent. And without a good reason to rule it out, we lack a good reason to think that quantum mechanics poses a counterexample to explanation maximalism. (The solution here generalizes in obvious ways to account for non-quantum events that may not be deterministically explained. For example, if there is an indeterministic process that results in a winning lottery ticket having a certain number, facts about that process may partially explain why the winning lottery number is what it is.<sup>3</sup>)

I should point out that indeterministic explanations need not be *contrastive*. That is to say, an indeterministic explanation need not explain why something is the case *rather than* something else. So, for example, if Sue has reasons to eat watermelon, those reasons need not explain why she decides to eat watermelon rather than pork. Of course, you might wonder why Sue decides to eat watermelon rather than pork, especially if Sue *also* has some reason to eat pork. But explanation maximalism doesn't require that there be a further explanation of why Sue does one thing *rather than* another. It only requires that each fact have *some* explanation.<sup>4</sup> (To be

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<sup>3</sup> I am grateful to [removed] for bringing to my attention to value of suggesting how the solution generalizes.

<sup>4</sup> This point underscores one reason why I think Peter van Inwagen's objection to the principle of sufficient reason doesn't squarely target explanation maximalism. In a presentation at [removed], van Inwagen expressed the

clear, explanation maximalism does require an explanation of the *conjunctive* fact that Sue decides to eat watermelon *and* that Sue doesn't decide to eat pork. But that fact doesn't pose any special problems. It may simply be explained by whatever facts explain its conjuncts. So, for example, the fact *that Sue has reasons to eat watermelon* may explain the first conjunct, as I have suggested, and the fact *that Sue eats watermelon* together with *the fact that she has reasons not to eat both pork and watermelon* may explain the second conjunct.)

The Indeterminacy Objection, then, requires (among other things) the assumption that there are no indeterministic explanations. That assumption, as I have suggested, is in tension with our ordinary talk about explanations; moreover, the Indeterminacy Objection presupposes a stronger notion of explanation than explanation maximalism requires. Therefore, our body of knowledge doesn't obviously include any facts of the form *quantum event e has no explanation*. (For the unconvinced, I will later—in section 4—suggest a restricted principle of explanation that allows for unexplained quantum events.)

### 3.2. *The Big Contingent Fact*

Perhaps the most sophisticated objection to explanation maximalism is that it cannot account for the 'biggest' contingent (non-necessary) fact. The 'biggest' contingent fact is a contingent fact that entails all others. Call it 'the Big Fact'. Here is an outline of a standard reason to think that the Big Fact cannot be explained:

- (B1) Whatever explains the Big Fact is either contingent or necessary.
- (B2) The Big Fact cannot be explained by something contingent (else circularity).
- (B3) The Big Fact cannot be explained by something necessary (else the Big Fact would be necessary).

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worry that no fact could explain why any particular necessary state should 'kick off' a particular explanatory chain *rather than* that some other necessary state 'kicks of' a different explanatory chain. I will return to the issue of necessary explanations of contingent facts in section 3.2.

(B4) Therefore, the Big Fact cannot have an explanation.<sup>5</sup>

The crucial premises are (B2) and (B3). Consider, first, (B2). This premise says that there cannot be a contingent explanation of the Big Fact. The justification for (B2) derives from the following two premises:

(B2i) Any contingent fact that explains the Big Fact is wholly included within the Big Fact itself, resulting in a circular explanation.

(B2ii) There are no circular explanations.

Premise (B2i) may seem to be true by definition, for the Big Fact includes *every* contingent fact, just by definition.<sup>6</sup> And premise (B2ii) is plausible because circular explanations are plausibly *impossible*: for instance, no chicken can explain its own existence, it seems.

Turn next to (B3): the Big Fact cannot be explained by something necessary. Perhaps the simplest argument for (B3) is based upon the premise that, in general, explanations must necessitate their explanandums. For suppose explanations necessitate their explanandums. Then a *necessary* explanation of the Big Fact would render the Big Fact *necessary*. The Big Fact is not necessary (by definition), however. Therefore, no necessary fact explains the Big Fact. (I will consider a different argument for (B3) in a moment.)

I have already expressed why one might resist the premise that explanations must necessitate their explanandums. As I suggested, ordinary language seems to reveal a form of

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<sup>5</sup> Note 1 contains references to instances of this argument in the literature.

<sup>6</sup> I have simplified things a bit for the sake of presentation. Complexities arise when we consider what it means to be “included” within a fact. Consider the fact that the angles of a triangle add to 180 degrees. There does not seem to be any serious problem with supposing that this fact is explained by the axioms of geometry. But notice that the explanation here is broadly logically *entailed* by the explanandum. It seems, then, that there is no problem, in principle, with supposing that an explanandum entails its explanation. The kind of “inclusion” involved in (B2i), by contrast, is not mere entailment. What is the nature of the inclusion? To answer that question, we may spell out (B2i) more precisely as follows: any contingent fact that might explain the Big Fact would be wholly *part of* the Big Fact itself, *unless* some part of the explanation is a necessary fact. For the sake of presentation, however, I will work with the simpler premise, since (B2) won’t be the target of my critique.

explanation that is *non-necessitating* (and perhaps partial). If that is correct, then it may be possible, in principle, for a necessary fact to indeterministically explain the Big Fact. So, I don't think the above reason to accept (B3) is compelling. (Once again, I invite those who assess the matter differently to skip to section 4, where I propose back-up principles of explanation.)

But even if indeterministic explanations are possible, one might still argue for (B3) by motivating the claim that there cannot be an indeterministically explanation of *the Big Fact*. Consider, for instance, the following reasoning. Let  $n$  be a necessary fact that explains the Big Fact, and let  $e$  be the fact that  $n$  explains the Big Fact. Now  $e$  is either necessary or contingent. Fact  $e$  isn't necessary, since otherwise the Big Fact would be necessary (which it isn't). Therefore,  $e$  is contingent. Now if  $e$  is contingent, then  $e$  is included within the Big Fact. The result is that  $n$ 's act of explaining the Big Fact is among the very facts that  $n$  explains by that very act. The explanation here is thus circular. I take this reasoning to be an especially potent argument for (B3). (For many years, I myself considered this sort of argument to be decisive.)

The above reasoning is too quick, however. Circularity results *only if* the following is true:  $n$  explains the Big Fact *by an act of explanation*. Put differently, the assumption in question is that  $e$  is itself foundational to—or part of—the explanation of the Big Fact. It is this assumption (or something in the neighborhood) that allows us to deduce circularity: for if  $e$  is foundational to the explanation of the Big Fact, then  $e$  is explanatorily *prior to* the Big Fact, despite being *included in* the Big Fact. I have come to think this assumption is mistaken.

Let us call the above assumption—the assumption that  $n$  explains the Big Fact *by an act of explanation*—‘The Critical Assumption’. The problem with the Critical Assumption, as I see it, is that  $n$  may itself contain the ultimate explanation of *every* part of the Big Fact, *including*  $e$ . Here is a story, called ‘Ultimate Explanation’, about how this explanation might work:

**Prologue:** Assume for simplicity that  $n$  contains (or entails) every necessary fact.

**Chapter 1: Explaining the Cosmos.** Once upon a time, certain necessarily existent particles indeterministically changed position in accordance with certain necessary probabilistic laws. How is that? The particles enjoyed an original state, such that no other starting state was metaphysically possible. Now the particles essentially have *tendencies* to change in certain ways in certain positions. And these tendencies provided a non-necessitating, partial explanation of why the particles changed in the ways they did at each position. The subsequent positions and motions of these particles then gave rise to the contingent structure and evolution of the entire cosmos. As a result, certain necessary facts, which are included in  $n$ , provide an *ultimate* explanation of the contingent facts about the cosmos.

**Chapter 2: Explaining the Explanations.** The plot thickens. The contingent explanations given in Chapter 1 are themselves about to be explained. Let  $p_N$  be the necessary fact that a certain particle  $p$  has some tendency to shift to state  $\alpha$  at time  $t_1$ , given the necessary initial state  $\beta$  at time  $t_0$ . And let  $p_C$  be the contingent fact that  $p$  shifts to  $\alpha$  at  $t_1$ . In keeping with the previous chapter of the story,  $p_N$  provides a non-necessitating, partial (and perhaps *non-contrastive*) explanation of  $p_C$ . (Had  $p$  instead shifted to  $\alpha_2$ , say, then that would be because of the necessary fact that  $p$  has some indeterministic *tendency* to shift to state  $\alpha_2$  at time  $t_1$ ;  $p$  may essentially have multiple tendencies simultaneously.) Now for the crucial question: why does  $p_N$  explain  $p_C$ ? Part of the answer is that it is *impossible* for  $p_N$  *not* to explain  $p_C$ , assuming that  $p_C$  obtains: that is, necessarily,  $p_N$  explains  $p_C$  if  $p_C$  obtains. The other part of the explanation is that  $p_C$  obtains. (This proposal places  $p_C$  explanatorily prior to  $p_N$  explains  $p_C$ ; and  $p_N$  is prior to both. No circularity arises, therefore.) These two parts together jointly explain why  $p_N$  in fact explains  $C$ . The two parts are themselves explained by facts included in  $n$ : part one is explained by a necessary fact about explanation, and part two (that  $p_C$  obtains) is explained by  $p_N$ . The same sort of explanation arises for every fact of the form  $N$  explains  $c$ , where  $N$  is necessary and  $c$  is contingent. We thus avoid circularity: necessary facts lay at the foundation of all contingent facts about explanation.

And everyone lived happily ever after.

## **The End.**

I have found no arguments in the literature that rule out the possibility of a scenario like Ultimate Explanation. It is also worth noting that the story is naturalistic and requires no gods or supernatural necessary beings. I suspect, therefore, that many philosophers will welcome a story like Ultimate Explanation, especially since it enables an ultimate explanation of contingent reality.

Ultimate Explanation also enables an alternative to the Critical Assumption—the premise that  $e$  (the explanatory link between the necessary first cause and the Big Fact) is part of the explanation of the Big Fact. According to the story, the ultimate explanation of the Big Fact includes necessary facts about the tendencies of particles at particular positions. These facts do their explanatory work ultimately (and indeterministically) because of necessary facts about the explanations themselves. This story precludes the Critical Assumption, since it places  $e$  in the Big Fact, not prior to it. It seems, then, that the Critical Assumption is not logically inescapable; there is another option. The upshot is that the Big Fact can have a perfectly coherent explanation, after all.

### *3.3. Necessary Facts*

Someone might object to explanation maximalism on the grounds that some necessary facts do not have an explanation. Take, for example, the axioms of ZF set theory. You might think those axioms express necessary facts. But what could explain them? Since they are *axioms*, it may seem that they cannot be explained.

I reply that even axioms may be explained. I have two different proposals for how an axiom might be explained. First, perhaps necessary facts are explained by facts about the necessary nature of things. Take, for example, the fact that *no two sets have all the same*

*members* (assuming it is a fact). I propose that this fact is explained by the fact that it is the very nature of a set to be distinguishable by its members. Equivalently: sets are extensional because they *must* be so according to their very nature. The explanation here seems to answer the “why” question: if I am puzzled as to why *each* and *every* set just so happens to have distinct members, for example, my puzzlement subsides once I realize that this fact about sets necessarily falls out of the *very nature* of set-hood itself.

My proposal, then, is this:

Necessary Explanans: For every necessary fact  $f$ ,  $f$  is explained by a fact  $N_f$ , which is a fact that says of certain things that they *must* exist or be a certain way by their very nature.

This hypothesis seems to account nicely for many particular cases. Take, for example, the fact that any two intersecting lines form equal and opposite angles. That fact may be explained by the fact that intersecting lines and angles have a nature such that intersecting lines *must* form equal and opposite angles. Similarly, we may explain why each and every thing happens to be self-identical by the necessary nature of self-identity. We may even explain explanation maximalism itself by the necessary nature of explanation and of facts. None of this seems problematic, I’d say. Indeed, it may seem quite reasonable.

At this point, someone might object or worry that Necessary Explanans entails that there is no *ultimate* explanation of anything. So, for example, the fact that *sets must be extensional by their nature* would be explained by the fact that *it is by the nature of the nature of sets that they must be extensional*. And that fact would be explained by the fact that *it is by the nature of the nature of the nature of sets that they must be extensional*. And so on, *ad infinitum*. This regress is problematic, one might think, because explanations cannot regress into infinity. Call this objection ‘the Regress Objection’.

It is useful to distinguish between different kinds of regresses. Let us say that a series of explanations is *tightly-ordered* if and only if each member in the series is such that it would fail to be an explanation were it to lack an explanation itself.<sup>7</sup> So, for example, suppose there is an infinite, bottomless stack of turtles in which each turtle in the stack is supported *only if* its supporter is “already” supported. Then it may seem that the position of each turtle would have an explanation only if that very explanation were itself explained. Such a series of explanations would be tightly-ordered. An infinite tightly-ordered regress may seem problematic because it may seem that without an ultimate explanation, no member in the series would *be* or *have* an explanation.

But consider, by contrast, a *loosely-ordered* regress, which is an explanatory series that isn't tightly ordered. Suppose, for example, that each state of the universe is causally explained by a prior state. And suppose that any given state of the universe would be explained by a prior state *whether or not* that prior state were itself explained. Then the series of explanations would constitute a loosely ordered regress. Is an infinite loosely ordered series problematic? It may seem not. After all, each member in the series has an adequate explanation, *even if* there is no ultimate explanation.

Does Necessary Explanans generate a tightly-ordered regress? It seems not. Consider, for example, the fact that sets are extensional. One asks, “*Why* is every set extensional?” You answer, “Because of the nature of sets: sets *must* be extensional?” Have you answered the question? It seems you have, for your answer explains why each and every set happens to be extensional. Furthermore, it seems that your answer explains the fact in question whether or not there is a further explanation of why sets *must* have the nature they have. In general, each fact of

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<sup>7</sup> The ‘tightly-ordered’ regress is akin to what medieval philosophers called ‘an essentially ordered series’. See Kerr 2012 for a recent account essentially ordered regresses.

the form *f must obtain* would seem to explain why *f obtains*, whether or not *f must obtain* has an explanation itself. In other words, the explanatory regress seems to be loosely-ordered. As a result, it is unclear why an infinite regress of necessary explanations should be problematic. An infinite loosely-ordered series may be no more problematic than the infinite series of ‘successors’ that comprise the natural numbers. If there is a problem with loosely ordered series, it is not obvious what it is.

Here is a second, backup proposal. Perhaps some necessary facts are *self-explanatory* in the following sense: they obtain in virtue of the existence of their “propositional content”. Take, for example, the fact that everything is self-identical. That fact has, let’s say, the propositional content *that everything is self-identical*. Now suppose that a propositional content is *identical to* a fact (has the property of *being a fact*) if and only if that content is true. And suppose that the fact *that everything is self-identical* obtains in virtue of the sheer existence of its propositional content. It then follows that the fact *that everything is self-identical* obtains in virtue of its *own* existence. Suppose, then, that any fact that obtains by virtue of its own existence is “self-explanatory”. In that case, the regress of explanations might be thought to bottom out in self-explanatory necessary facts. (Note that this sense of “self-explained” only applies to *necessary* facts if propositional contents exist of necessity.)

### 3.4. Other Potential Counterexamples

You: “What explains the fact that there are any facts at all?”

Me: “My answer is that there are facts because *there must be facts*. Recall the previous section.”

You: “Isn’t that circular? The fact *that there must be facts* is among the very facts whose existence is to be explained.”

Me: “The fact that there must be facts doesn’t explain *itself*. It explains the very different fact *that there are any facts*, and *that* fact is certainly not explanatorily prior to the fact *that there must be facts*. I don’t see a problem.”

You: “The problem is that the proposed explanation cannot itself *exist* unless the explanandum exists.”

Me: “But that is true for *any* necessary fact that explains another necessary fact. Where is the problem?”

You: “Okay, what about the *biggest* fact, then, which includes *all* others? What could explain it?”

Me: “If by ‘includes’ you mean *entails*, then my answer is this: the biggest fact is explained by whatever explains its contingent and necessary ‘parts’, where (i) the contingent ‘parts’ are ultimately explained by its necessary ‘parts’ in accordance with Ultimate Explanation (recall section 3.2), and (ii) the necessary ‘parts’ are explained by the fact *that they are necessary* (recall section 3.3). Of course, the proposed *explainer* is entailed by its *explanandum*. But then so is any necessary fact that explains another necessary fact. I don’t see a problem here.”

You: “What about the *conjunction* of all facts? What could explain it?”

Me: “There is no such thing. A conjunction of all facts would be a conjunction of *itself*. But surely no fact is a mere conjunct of itself.<sup>8</sup> If you say that every fact is *trivially* a conjunction of itself, then I’ve lost my grip on what you mean by ‘conjunct’.”

Me: “Any other questions?”

#### **4. Restricted Principles of Explanation**

My primary goal in this paper is to revitalize the pursuit of a general principle of explanation.

There is no space to discuss every possible counter-example someone might think up. But I trust I’ve

said enough to at least get explanation maximalism on the table for further discussion. I

recommend that we *begin* with the simplest, most general principle: explanation maximalism.

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<sup>8</sup> Moreover, suppose a fact could be a conjunct of itself. Then the conjunction of all facts that aren’t conjuncts of themselves would itself be a conjunct of itself *if and only if* it isn’t. The best way to avoid this contradiction, it seems to me, is simply to reject the assumption that a fact can be a conjunct of itself.

We should begin with that principle because it provides the simplest explanation of the wide variety of facts that apparently have an explanation.

But suppose one is bothered by looming counterexamples. Perhaps one is unconvinced by my defense of explanation maximalism, or perhaps one perceives candidate counterexamples that I didn't address. In that case, I suggest that one should look for natural ways to restrict explanation maximalism. We would like to have at least *some* general principle of explanation that can account for a wide variety of apparent cases of explanation.

I will close by listing a few candidate restricted principles of explanation:

*E*<sub>1</sub>: Every contingent fact has an explanation.

*E*<sub>2</sub>: Every purely contingent fact has an explanation, where a purely contingent fact is one that features only contingent states of contingent things.

*E*<sub>3</sub>: Every (contingent) fact of the form the *x*s exist has an explanation.

These three principles avoid one or more of the alleged counterexamples we considered earlier. Principle *E*<sub>1</sub> avoids altogether the worry that some necessary facts lack an explanation, since it restricts the scope to contingent facts. Principle *E*<sub>2</sub> avoids the problem of explaining the biggest contingent fact, since it restricts the scope to *purely* contingent states, where a purely contingent state makes no mention of necessary things. Principle *E*<sub>3</sub> avoids the Problem of Indeterminism because it restricts the scope to facts *other than* facts about indeterministic changes. (Note that none of these principles require that facts outside their scope *lack* an explanation.)

Some philosophers may be motivated to add additional restrictions. So, for example, a *contingentist* (anyone who thinks every concrete thing is contingent) might wish to restrict the scope to singular facts concerning *particular* contingent things, since one might think that the *general* fact that *there have been any contingent things at all* cannot be explained solely in terms of contingent things. There are many options worth exploring.

Obviously, each of the restricted principles is more complex than explanation maximalism. That is why they are backups. Our best bet is to start with explanation maximalism, I suggest.<sup>9</sup> Then if, and only if, we are convinced that explanation maximalism suffers from counterexamples, we should look for a suitable backup. To the skeptics of such counterexamples, I recommend a simpler hypothesis: there is an explanation for every fact.

*Update:* An updated hypothesis is that every fact is *explicable* in terms of something actual, but not that every fact actually (automatically) has an explanation. The seed of this update was a self-reference paradox, which I discuss in “Foundation of Reason,” [How Reason Can Lead to God](#). The problem is that the fact that *the facts exist* refers to itself if it is among the automatically existing facts. Yet, if there are self-referring facts, then the fact that the self-referring facts exist is itself self-referring *if and only if* it isn’t—a contradiction. Therefore, self-referring facts don’t exist. Therefore, *the facts exist* isn’t among the automatically existing facts. Therefore, there isn’t automatically a fact about whatever exists. Therefore, there isn’t automatically an *explanation* about whatever exists. Therefore, not every fact has an explanation.

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<sup>9</sup> Of course, one may *also* move in the opposite direction: start with the most restricted and most secure principles and see how far we can reasonably generalize. In the absence of counterexamples, the result will be the same.

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