Explanations, Reasons Why, and Causes

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Abstract
This paper presents a new causal theory of explanation. The theory make central use of the notion of a reason why. It asserts: the fact that Q is a reason why E happened if and only if the fact that Q is a cause, or a ground, of E. The theory is compared to other causal theories, and defended against several kinds of counterexamples. It is argued that many of the counterexamples fail because they confuse different “levels of reasons.”

1 Introduction: the Centrality of Reasons Why

Look through a collection of explanations and what do you see? What do they have in common? Many explanations say something about the causes of the fact being explained, as when the flat tire explains why the car skided off the road. But plenty of other explanations do not appear to identify any particular cause of the fact being explained. And the sciences often make heavy use of mathematics in explanations — and mathematical facts do not cause anything.

In spite of this, I am on the side of those who think that explanations of particular events must invoke causes. But this claim is vague, and can be developed in different ways. I have a new way of developing it, one that, I will argue, is both the most natural and most defensible way. My goal in this paper is to explain my theory and defend it against a host of examples of non-causal explanations that have been offered.

What makes my theory novel is the central use it makes of the notion of a reason why. I think that framing a causal theory of explanation in terms of this notion makes clear how best to
formulate the theory, and that using this notion to think about apparent counterexamples makes it easier to see why those counterexamples fail.

One benefit of thinking in terms of reasons why will become important late in the paper. Thinking in terms of them makes it easy to see a distinction between “levels of reasons.” At the first level are the reasons why P is true. At higher levels are the reasons why those reasons are reasons. I will argue that many alleged examples of non-causal explanations earn their appeal by confusing these two levels of reasons, and that attention to the distinction between levels shows these examples to be compatible with the thesis that explanations of events invoke causes.

2 Identifying the Target

Before I begin setting out my theory I want to say something about what phenomena it is, and what phenomena it is not, meant to cover. First, it is a theory of explanations of events only. Newtonian mechanics explains why Galileo’s law of free fall is true, but this explanation does not invoke any causes of the truth of that law. This is not a problem for my view because Galileo’s law of free fall is not an event, and so falls outside the scope of my thesis. Second, my theory is a theory of explanations that answer why-questions. Some have held that a theory of explanation should have something to say about explaining how, not just about explaining why. If they are right, then my theory is incomplete. But even if they are right, a theory of explaining why is still a central and important part of any complete theory of explanation.

So far it looks like my theory should take the form of necessary and sufficient conditions for a person, or a body of fact, to explain why P, when P describes the occurrence of an event. But actually my theory will not look like this. Here is why.

When someone explains why P, then if things go well their audience learns the answer to the question why P. If a physicist explains to me why the planetary orbits are stable, after hearing her I should know the answer to the question why the planetary orbits are stable. But

1 See (Hempel 1965: section 5.2), which cites (Dray 1957); see also (Cross 1991).
still, it can happen that the physicist says some things, and I accept what she says, and I thereby come to know why the planetary orbits are stable — all of this can happen even if the physicist does not explain to me why the orbits are stable. Maybe the physicist (merely) tells me why the orbits are stable without explaining to me why the orbits are stable. In general, one may answer the question why P without explaining why P.

Explaining and answering why-questions come apart in the other direction too. One may explain something without answering any why-questions, as when one explains how a carburetor works, or what the theory of evolution says.

So there are two parts to explaining why P that are separable. First, one must convey to one’s audience the answer to the question why P. And second, one must do this by performing the speech act of explaining. It may be that a complete theory of explanation — a complete theory of the kind that philosophers of science have sought under that name — should cover both these parts. It should both say what it takes for a proposition to be an answer to the question why P, and also say what it takes for someone to have performed the speech act of explaining. I do not have a theory of explaining. What I have is (part of) a theory of answers to why-questions. But, again, even if this makes my theory of explanation incomplete, a theory of answers to why-questions is a central and important part of any complete theory of explanation.

I say “it may be” that a theory of explanation should say something about the speech act of explaining. But how could this fail to be the case? Isn’t it obvious that any theory called a theory of explanation should say something about the speech act of explaining? Not if philosophers of science have been using a bad name for the kind of theory they are after. I suspect they have, for I suspect that the question of what distinguishes explaining from other speech acts is not something that philosophers of science should be interested in (as opposed to philosophers of language). However, nothing in this paper will turn on this suspicion of mine, and I have not argued for it here. (Van Fraassen (1980) thinks there is nothing more to a theory of explanation than a theory of why-questions. On the other side are philosophers like Achinstein (1983), who devotes a lot of attention to the speech-act of explaining. Many philosophers see a close connection between explanation and understanding; see for example (Friedman 1974). Nothing in this paper turns on the connection, if any, between these notions.)

This is a good place to flag that some philosophers distinguish between two kinds of why-questions: “explanation-seeking” why-questions, and “evidence-seeking” why-questions. (It was Hempel who first made this distinction (1965: 335), but it is endorsed by many others, for
3 Reasons Why in Answers to Why-Questions

I am going to propose a theory of reasons why. But first I need to explain the relationship between reasons why, and answers to why-questions.

I want to start by focusing on answers to why-questions of the form “P because Q.” Why did the car skid off the road? It skided off the road because it had a flat tire.

Not all answers to why-questions are of this form. “Why are the rain gutters there?” can be answered with “The rain gutters are there to catch the rain,” which does not contain “because.” I happen to suspect that these kinds of answers are equivalent to answers that do use “because,” but it is beyond the scope of this paper to defend this claim.[4] If I am wrong, then I am here again limiting the scope of my theory. But it has not become so narrow as to be uninteresting, since “because”-answers are a huge and important class of answers to why-questions.

So let us get back to

(1) The car skidded off the road because it had a flat tire.

Sentence (1) can be an answer to the question why the car skidded off the road. Now I want to make a key claim that will drive the rest of my theory. I submit that if in some circum-

example (Salmon 1989: 6). If they are right about the existence of this distinction, then, it seems, no matter how you answer an evidence-seeking why-question, you have not explained anything. I have my doubts about this distinction, but will not press them here, and nothing that follows turns on whether the distinction is real. Readers who accept the distinction should read my discussion as limited to explanation-seeking why-questions.

For example, I think that “The rain gutters are there to catch the rain” is equivalent to “The rain gutters are there because someone put them there to catch the rain.” But this is an easy case; harder are examples like “The flower closed its petals at sundown to conserve pollen” (as an answer to “Why did the flower close its petals at sundown?”) or “Jones went to the store to buy peanut butter” (as an answer to “Why did Jones go to the store?”). Along with ignoring answers like “Jones went to the store to buy peanut butter,” I am also going to ignore why-questions, like the question why Jones went to the store, that are interpreted as requesting an agent’s reasons for acting. Again, this is to keep the scope of this paper manageable. The current debate in the philosophy of science over whether there are non-causal explanations never focuses on questions like this.
stance one can answer the question why the car skidded off the road by saying (1), then in that circumstance one can also answer the question by saying

(2) One reason why the car skidded off the road is the fact that it had a flat tire.

Not only are (1) and (2) both answers to the same question; I also think that, in some sense, they are equivalent answers.

I take this to be obvious, though my second claim is vague. In just what sense are (1) and (2) equivalent? I mean that (1) and (2) do not compete, that once someone asserts (1) he would not add anything to his answer by then asserting (2) — though this is all still vague. I do not know how exactly to think about the relationship between (1) and (2), or, more generally, about the relationship between because answers and reasons-why answers. But I also think I can make progress without having a worked-out view about these things. Reasons-why answers, like (2), are not couched in a new theoretical vocabulary I am introducing. They are perfectly ordinary English. We offer, accept, and reject reasons-why answers all the time. So I do not need to show how they are linked to because answers in order to make it acceptable to put them at the center of my theory.

So what I am going to do is focus on answers to why-questions of the form (2), and not say much about answers of the form (1), or about the relationship between the two forms of answer. What I aim to do is produce a theory of “reasons why” answers to why-questions. That is, I aim to produce a theory of reasons why — a theory that says what it is for the fact that Q to be a reason why P.

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5 A referee suggested that it may not be the case that (1), if true, is thereby automatically an answer to the question why the car skidded off the road. I am not assuming this. Instead I am just focusing on a circumstance in which (1) does have what it takes to be an answer.  

6 Here is a relatively precise claim one might make about the relationship between (1) and (2): they are synonymous. More generally, one might claim that “P because Q” means the same as “The fact that Q is a reason why P.” This claim is almost certainly false; surely sentences of these two forms will turn out to have different semantic structures.

7 What I aim at is a “metaphysical,” or “philosophical,” theory of reasons why. It is not my goal to say anything directly about the semantics of “why,” or of why-questions (just as saying...
Why do I want to focus on reasons-why answers, rather than because answers? My main reason is that I think this focus leads in a more fruitful direction. As I said in the introduction, doing things in terms of reasons why makes it easier to see how the idea that explanations of events cite causes is best understood, and makes it easier to see why certain proposed counterexamples do not work. To judge whether I am right about this, one must see for oneself how the theory develops. So it is time now to get my theory out in the open.

4 Reasons Why are Causes

“Explanations of events invoke causes.” How should this be made precise? The slogan raises lots of questions. Does an explanation of E need to identify particular causes of E? If so, how many? Or can an explanation just say something general about the causes of E without identifying any particular causes? Is it enough to say, for example, that E had more than three causes, or that E’s causes acted indeterministically (the set of all E’s causes did not require E to occur)? If I identify an event that is a cause of E, without saying that it is a cause of E, have I explained why E occurred? Different philosophers have answered these questions differently.

For what it’s worth, some linguists and philosophers who know a lot of linguistics seem to see a closer connection between why-questions and reasons-answers than between why-questions and because-answers. Huddleston and Pullum, for example, in their grammar book’s section on questions and their answers, write that “When, where, and why call for replacements denoting times, places, and reasons, respectively” (205: 166). For another example, when Jason Stanley generalizes Karttunen’s semantics for the interrogative uses of “who” and “which” to “why” (Karttunen 1977), he writes that “‘why’ quantifies over reasons...The word ‘why’ is semantically equivalent to ‘some reason’” (2011: 45). The fact that “reason,” as it appears in “reason why P,” is a count noun, will play a role later in my argument, in section 5.

Wesley Salmon proposed one set of answers (1984); David Lewis had another (1986); and they are just two prominent examples. A more recent defense of the idea that explanations invoke causes is in (Skow 2014), but his precisification of the idea largely follows Lewis. (Woodward (2003) and Strevens (2008) defend theories of causal explanation. Neither endorses the thesis that all explanations of events are causal, but coupled with this thesis each of their theories constitutes another set of answers to these questions.)
but I submit that it is hard to decide which answers constitute the “best” precisification of the slogan. It is hard to decide which answers do the most justice to the ideas motivating it. This is hard, that is, unless we start out with the aim of formulating a theory of reasons why. The most natural translation of “explanations of events invoke causes” into reasons-why talk is “the reasons why an event occurs are its causes.” More carefully, the theory that emerges asserts every instance of (3), when “P” is replaced by a sentence that describes the occurrence of an event:\textsuperscript{10}

\begin{equation}
(3) \text{The fact that Q is a reason why P if and only if the fact that Q is a cause of the fact that P.}
\end{equation}

This is — almost — the thesis I want to defend. Before defending it, though, I want to compare (3) to David Lewis’s causal theory of explanation. This will help us better see (3) for what it is. It is also an opportunity to introduce the notion of a partial answer to a why-question, which will be important later.

Lewis made popular the idea that explaining why some event E occurred is a matter of providing information about E’s causal history (Lewis 1986). And any piece of information about E’s causal history counts, even very abstract and non-specific information; the information need not identify any particular causes of E. How does Lewis’s theory compare to mine? What does Lewis’s theory say it takes for something to be a reason why E occurred?

The answer is: nothing. Lewis did not have a theory of reasons why. I think this is a defect in his theory; for, again, I think the reason why should be the central theoretical notion employed by a theory of explanation.

I will say more about Lewis’s actual theory in a minute. For now let us ask, what theory of reasons why does the idea that explaining is a matter of providing information about causal

\textsuperscript{10}I won’t try to say anything helpful about which sentences do this.

\textsuperscript{11}For stylistic convenience I sometimes speak of causation as a relation between facts, and sometimes as a relation between events. I remain neutral on which, if either, of these ways of speaking gets us closer to causation’s “fundamental nature” (though an argument in section 7 may force me to choose).
histories suggest? Here is one proposal:

(4) The fact that Q is a reason why P if and only if the fact that Q is a fact about the causal history of the fact that P.

Is there anything to be said for preferring (4) to (3)? Here is a thought. Naming a cause of the fact that P is just a special case of providing information about its causal history. And naming a cause is not interestingly different from providing information about the causal history that does not name a cause. So it would be arbitrary to treat them differently in our theory.

Whatever we think of this motivation when considered in isolation, in the end we should go for (3) rather than (4). To see why let us look at Peter Railton’s challenge to the thesis that all explanation of events is causal. He presented examples that he took to show that we sometimes explain why some uncaused event occurred by saying that it was uncaused. Such examples do look, at first, like counterexamples to (3). But, as Lewis in effect pointed out, they are not challenge to (4), since the fact that E had no causes is a fact about E’s causal history.

However, when we think about this kind of example from a “reasons why” perspective, it in fact favors (3) over (4). Suppose a fundamental particle W appears out of nowhere, its appearance uncaused. This is a problem for (3) only if “A reason why W appeared is that its appearance was uncaused” is true, since the fact that the appearance was uncaused is not a cause of the appearance. But (3) is in no danger, because this sentence is false. At least, it strikes me as false.

So we do not have here an example of an explanation, much less an example of a non-causal explanation. Uncaused events do not pose a threat to the idea that explanation is causal

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12His examples were reported in (Lewis 1986). One example went more or less like this. Q: why did that white dwarf star stop collapsing? A: nothing caused it to stop, instead the Pauli Exclusion Principle explains why it stopped. But this example is not really the kind of example that Railton wanted it to be (I agree with the arguments in Skow 2014), so I will not discuss it.

13This is fake physics; the reasons why actual fundamental particles appear out of nowhere are not my concern.

14“W appeared because its appearance was uncaused” sounds just as bad.
that embracing (4) allows us to defuse. They pose no threat in the first place. What they do do is show that (4) is false. For while “A reason why W appeared is that its appearance was uncaused” is false, it is true according to (4).

Of course, someone might very well respond to “Why did particle W appear?” with “Well, you know, W’s appearance was spontaneous, completely uncaused.” But I do not think this exchange supports (4) over (3). To my ear, this response to the why-question does not claim that the fact that W’s appearance was uncaused is a reason why W appeared; it claims instead that there are no reasons why W appeared. That can be a perfectly good answer to the why-question, just as “No one came” can be a perfectly good answer to the question who came to the party. More importantly, it is the answer (3) predicts is correct.

5 Partial Answers

Holding fixed for now that we like the idea that all explanations of events are causal, there is another reason to prefer (3) to (4) that we have not yet seen. If Alice throws a rock, which breaks the window, while Bob and Carol stood by, rocks in hand, then in context “Carol did not throw a rock” expresses a proposition about the causal history of the breaking. It rules out the hypothesis that it was Carol who threw the rock that broke the window. But no way is this true:

(5) That Carol did not throw a rock is a reason why the window broke.

If (4) is correct, though, this sentence is true. (3) does not have this absurd consequence, since the fact that Carol did not throw a rock is not itself a cause of the breaking.

Of course we can imagine situations in which (5) is true. It could have been that Alice wasn’t going to throw if Carol did, and so threw only after seeing that Carol did not. Then “Carol did not throw” does not just tell us something or other about the causal history of the breaking, it identifies a cause of the breaking. But that is not the scenario I was imagining.
Now as philosophers and linguists alike have emphasized, questions have both complete and partial answers. “Joe, Jessalyn, James, and no one else came to the party” is a complete answer to the question who came to the party; “Some people who Frank knows” is a partial answer. For a given question we can usually identify a set of “possible complete answers”; it will be a set of propositions which are pairwise incompatible, only one of which is true. Then something is a partial answer if it rules out some possible complete answer. “It wasn’t because Carol threw a rock” is a partial answer to the question why the window broke.

These observations, however, do not constitute a defense of (4). (4) still predicts that (5) is true, and (5) is still false. What these observations might do is motivate a different project. I have taken the project to be that of producing a theory of reasons why. We might instead have set out to produce a theory of partial answers to why-questions. And in fact a theory of this kind was Lewis’s aim in “Causal Explanation.” Lewis’s view is that a complete answer the question why E occurred must describe every cause of E, and every cause of every cause, and so on. Our brains are too small and our lives are too short to ever do that. “[A]ny serving of explanatory information we will ever get” is partial, Lewis wrote; “[t]here is always more to know” (237). For this reason, the notion of a partial answer plays a more important role in Lewis’s theory than that of a complete answer.

So what was Lewis’s theory of partial answers to why-questions? We have already seen his theory of complete answers. His theory of partial answers just combines his theory of complete answers with a general characterization of partial answers to questions (of any kind). Partial answers rule out possible complete answers, so partial answers to why-questions about events rule out possible complete causal histories.

I am not so sure that Lewis was right to say that we never have complete “servings” of explanatory information. Even if it is true that, speaking unrestrictedly, the set of all the reasons

\[\text{See, for example, (Lewis 1986) and (Higgenbotham 1996). I will have more to say about Lewis’s views presently.}\]

\[\text{Railton also thinks that the notion of partial explanatory information is a key notion a theory of explanation should use (Railton 1981).}\]
why some event E happened is enormous, it may also be true of any ordinary context in which we ask “Why did E happen?” that the set of reasons that are relevant is small enough to be knowable. Then we could have a “serving of explanatory information” that is not partial, by knowing, of all those relevant reasons, that they are reasons why E happened.

But set this point aside. To be asked to put either the notion of a complete answer or the notion of a partial answer to a why-question at the center of one’s theory is to be presented with a false dilemma. We can agree with Lewis that we rarely traffic in complete answers without being forced to focus only on partial answers. There is a third notion we might focus on, one that I think is more important than either of the other two: the notion of a reason why.

Let us see how reasons why relate to partial and complete answers to why-questions. Think again about questions other than why-questions. There is a distinction to be made between different kinds of partial answers. To the question who came to the party one might respond,

\[(6) \text{ Some people whose names begin with “J.”}\]

Or one might respond,

\[(7) \text{ Joe and Jessalyn came to the party.}\]

Suppose both are true. Assuming (7) is not meant to convey that no one else came, both responses are only partial answers. But there is a difference. The basic “atoms” that make up the complete answer to the question who came to the party are propositions expressed by sentences of the form “X came to the party.” The complete answer is a conjunction of propositions like this, together with the claim that no one else came. If we say that the atomic parts of this conjunction are its conjuncts, then (7) is a partial answer that is part of the complete answer. (6), on the other hand, is a partial answer that is not part of the complete answer. So we have more notions to work with than just partial answer and complete answer; we also have atomic part of the complete answer.
The same goes for why-questions. I suggest that the atomic parts are reasons (or, at least, propositions expressed by sentences of the form “That Q is a reason why P”).

Hempel’s D-N model of explanation (1965) says that an explanation of the fact that P is a sound argument with P as its conclusion that essentially contains at least one premise stating a law of nature. Hempel took the argument to be the “basic unit” of explanatory information. Lewis rejected this thought, and wrote:

It is not that I have some different idea about what is the unit of explanation. We should not demand a unit, and that demand has distorted the subject badly. It’s not that explanations are things we may or may not have one of; rather, explanation is something we may have more or less of. (238).

Lewis thought we should abandon the use of the count noun “explanation” and focus our theory-building around a mass noun like “explanatory information.” I’m okay with speaking of explanatory information as something we can have more or less of, but this stuff, explanatory information, is ultimately made up of things, reasons why, just as the stuff water is ultimately made up of H2O molecules. And the kind of thing out of which explanatory information is ultimately constituted has a good claim to be the “unit” of explanation. So I think the demand for a unit has not distorted the subject at all — it is just that the focus has been on the wrong candidate (D-N arguments, rather than reasons why).

The analogy with water is fruitful. You can have a bunch of hydrogen atoms without having any water, even if you can’t have water without having a bunch of hydrogen atoms. Similarly, if (3) is true, you can have a bunch of propositions about the causal history of E which do not add up to any reasons why E occurred, even if you can’t have a reason why E occurred without having a proposition about E’s causal history. So it is possible to know a lot of propositions about E’s causal history without there being any proposition p such that you know

\[17^\text{He actually seems to propose that we start using “explanation” as a mass noun, but I am loath to do that.}\]
that p is a reason why E occurred. Surely the conditions under which you know such things is of philosophical interest.

It is true that nothing I have said shows (8) to be false:

(8) The proposition that P is a partial answer to the question why E occurred if and only if P is about the causal history of E.

But it does not follow that we should not be interested in (3). For (3) and (8) aim to answer different questions, and, in my view at least, the question (3) aims to answer is the more important one.

6 Generalizations and Partial Answers

Even though I think that a theory of explanation should not focus just on partial answers to why-questions, the concept of a partial answer is important when thinking about examples. Some of Hempel’s ravens have migrated from the theory of confirmation to the theory of explanation. Woodward uses them as his anti-paradigm of a causal explanation (2003: 187):

(9) This thing is black because it is a raven and all ravens are black.

Woodward thinks that (9) is not a causal explanation, and contrasts it with some other examples that he thinks have the right stuff to be causal explanations. Still, (9) does not sound like a terrible thing to say. Should we conclude that (9) is true and so constitutes an explanation, just not a causal one? I don’t want to worry about what Woodward (or anyone else) means by “causal explanation,” so let me rephrase the question. Should we conclude that (9) is true, and therefore is a counterexample to (3)? For the fact that all ravens are black is certainly not a cause of the fact that this thing is black, so if it is nevertheless a reason why this thing is black, (3) is false.

Woodward does not explicitly say whether he thinks (9) is a non-causal explanation, or no explanation at all. He does give the impression that he thinks it is no explanation.
The first thing I should say is that (9) does not make direct contact with (3), since (9) uses “because,” not “reason why.” Still, I think that if (9) is true, then the fact that all ravens are black is a reason why this thing is black; so the truth of (9) is still a threat to my view.

So what do I think? I hold that (9) is false. And I don’t just believe this because I accept (3). Even if you’d never heard of (3), wouldn’t it still seem right to reject (9)? How could the fact that all ravens are black be a reason why this thing (which is a raven) is black? Surely it’s the other way around: the fact that this raven is black is one of the reasons why all ravens are black.

This is not, however, the end of what I have to say about (9). I can explain why (9) can sound like a pretty good thing to say, in a way that is compatible with the truth of (3). (9) can sound good even though it is false because the following exchange contains no falsehoods:

A: Why is this thing black?
B: Well, it’s a raven, and all ravens are black.

What B says here is an appropriate response to A’s question. That might lead you to think that it is actually an answer to A’s question, and therefore that (9) is true. But, and this is important, on my view B’s statement does not answer A’s question. It is an appropriate response without being an answer.

How can this be? What is the difference between an answer to a question and an appropriate response to it? An assertion can be an appropriate response to a question without being an answer to it if that assertion conversationally implicates an answer to the question.

This sort of thing happens all the time, with all kinds of questions. Jones asks “Is Smith coming to the party?” and Bloggs replies “He is sick.” The proposition that Smith is sick is not an answer to Jones’s question. (The two possible answers are: yes/Smith is coming, and no/Smith is not coming.) But Bloggs’ response is appropriate, because it conversationally

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19Well, I accept something a bit more complicated, which will be called (3*) below. But those complications are not relevant here.
implicates an answer. If the proposition that Smith is sick were all that Bloggs mean to convey, then Bloggs would be flouting Grice’s maxim of relation (“be relevant!”). Since we can assume that Bloggs is being cooperative, we can infer that he believes that what he said is relevant to the answer to the question whether Smith is coming, and that he meant for Jones to recognize that he believed this. And the obvious way in which what Bloggs said could be relevant is if the fact that Smith is sick is a reason why Smith is not coming to the party. Thus Bloggs’ assertion that Smith is sick conversationally implied that Smith is not coming to the party.

I think the same thing is going on when B says that this is a raven and all ravens are black. This conversationally implies a partial answer to A’s question. If B meant only to convey that all ravens are black, a proposition that does not answer A’s question, then his response would be irrelevant. Since B is being cooperative, there must be more. How could the fact that all ravens are black be relevant? A natural idea is that B believes that the answer to the question why this thing is black has something to do with the answer to the question why all ravens are black, or maybe the answer to the question why ravens in general are black. And the easiest way for these answers to have something to do with each other is this: at least some of the reasons why this thing is black are also reasons why each other raven is black. So by saying what he did B implicated this proposition. And this proposition is a partial answer to A’s question. It rules out some hypotheses about what the reasons why this thing is black are, without identifying any particular reasons.

Marc Lange often uses more realistic versions of (9) to highlight the explanatory power of laws of nature. He likes the example

(10) This powder burns with a yellow flame because it is a sodium salt and it is a law that all sodium salts, when ignited, burn with yellow flames.

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20 The theory of conversational implicature, of course, goes back to (Grice 1989).
21 More carefully: consider for each raven, the set of reasons why it is black; then there is a kind of reason that appears in each of these sets.
22 See (Lange and Lundberg 2005: 395) and (Lange 2013b: 257).
I think that (10), like (9), is false, but can sound like a good thing to say. And if I am right about why sentences like (9) and (10) can sound good, then they can sound good even if the generalization cited is not a law. Even if it is not a law that all ravens are black, as long as all ravens are, as a matter of fact, black for many of the same reasons, one may still implicate a partial answer to the question why this thing is black by saying that all ravens are black. If you ask why Jones is hungry I can say that everyone in the room is hungry, thereby implicating that the main reason why Jones is hungry is a reason he shares with everyone else (everyone here is participating in a starvation experiment). But the generalization I cite is not a law of nature.

Of course, while one need not cite a law to implicate a partial answer, one can, and it makes a difference. If it does not just happen to be true that all sodium salts burn yellow, if it is a law of nature that they do, then by citing this law in response to the question why this powder burns yellow one implicates that some of the reasons why this powder burns yellow are the same as the reasons why all sodium salts in the actual, and also in other physically possible worlds, burn yellow. It could turn out that all actual sodium salts that burn are ignited by tall men with brown eyes; even so, (10) is not directing us toward this reason.

7 Reasons Why that Aren’t Causes?

It has been a while since we have seen the claim I am defending, so here it is again:

(3) The fact that Q is a reason why P if and only if the fact that Q is a cause of the fact that P.

"Counterexamples" to (3) are legion. I would like to say something about a few of them. (Addressing them all is a book-length project.) I will start with some easier ones, saving the tougher nuts for a later section.

Here is one: a body exists alone in a Newtonian universe, moving along a straight line at constant speed. Why is it behaving this way, instead of accelerating? Because there are no

23 As always, “P” is to be replaced by a sentence that describes the occurrence of an event.
forces acting on it. That is, the reason why it is not accelerating is that no forces are acting on it. But the absence of forces is not a cause, because absences cannot be causes. Brandon (2006: 321), and following him Lange (2013a: 493) conclude that (3) is false. But their argument rests on controversial premises about causation. Two of them are: (i) the things that cause are events, and (ii) there are no such events as “absences.” I am willing to reject either. If facts are the things that cause, then the fact that there are no forces is available. If we insist that events are the things that cause, I am willing to embrace the existence of absences. There’s a lot of metaphysics that needs to be done to defend one or another of these claims, but others have defended them well, I think; this is not the place.

Nerlich (1979) adds a twist to this example. A cloud of dust moving inertially in non-euclidean space changes it shape. “Here,” Nerlich writes, “is one example of an observably changing state of matter which involves no causes at all...No forces operate at all. The curvature of space explains the change of shape in the context of classical physics but, quite clearly, is nowhere causally involved in it” (74). Up until the last sentence it looks like Nerlich is heading to the same place Brandon is: the claim that the cloud changed shape because no forces acted on it. But then he swerves. His actual claim is that the curvature of space explains the change of shape. Eliminating the “explains” in favor of “reason why” gives

(11) The fact that the cloud moved through a curved region of space is a reason why it changed

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24Refuting (3) is not their main aim, however; the moral they draw is that “causal” explanations need not “cite causes.”

25See for example (Bennett 1988), (Mellor 2004), and (Paul and Hall 2013). Other examples rest on different controversial theses about causation. Lange (2013a: 494), following Jackson and Pettit (1992), claims that dispositions explain their manifestations. For example: a wine glass is struck, and breaks; one reason why it broke is that it was fragile. But some philosophers deny that dispositions cause their manifestations. They deny that the fact that the glass was fragile is a cause of its breaking. This is a controversial claim about causation, one that I do not find plausible. (See section 6 of (Fara and Choi 2012) for a survey of responses to the claim that dispositions are not causes.)

26So to speak; Nerlich’s paper was published much earlier.

27I think these are supposed to be special dust particles that does not exert forces on other dust particles.
shape.

But that it moved through a curved region did not cause it to change shape; we are working with Newtonian physics, in which space has no causal powers.

The first thing I want to say is that I do not think (11) is true. I think the fact that the cloud moved through a curved region of space is not specific enough to be a reason why the cloud changed shape. (After all, clouds can move through curved regions of space without changing shape.) If we are to have a counterexample to (3) we need to look around the neighborhood of (11) for a true because statement. One candidate is

(12) The fact that the cloud formerly occupied a region with one shape, and now occupies a region with a different shape, is a reason why it changed shape.

This, I admit, is a counterexample to (3). But it is a kind of counterexample that has long been recognized, and there is a natural amendment of (3) that is still interesting and worth defending.

(3) is obviously false, because there are such things as “grounding” explanations. A grounding explanation shows why some fact obtains by citing some “metaphysically more basic” facts that ground it. For example: the reason why this ball is either red or green is that it is red. This example does not immediately threaten (3), because one might doubt that “This ball is either red or green” “describes an event.” But other examples are fatal. Here’s an easy one: the reason why the temperature of the water is 100 degrees Farenheit is that the mean molecular kinetic energy of the molecules is [...fill in the details].

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28 Standard references to grounding, and its connection with explanation, are (Rosen 2010) and (Fine 2012).

29 Why stop with one? Hempel’s main example of a non-causal explanation of an event is this one: this pendulum has a period of two seconds because it is one hundred centimeters long. But “surely” the length does not cause the period (1965: 352). Now this because claim is true only if we interpret the talk of the pendulum’s period as talk of a disposition. The explanation becomes: the pendulum is disposed to take two seconds to complete a full swing because it is one hundred centimeters long. Hempel is right, the length does not cause the dispositional period. This example points to the same solution as the temperature one: while the length may not cause the period, it does ground it.

18
There is an obvious revision of (3) that deals with these examples:\textsuperscript{30}

\((3^*)\) The fact that \(Q\) is a reason why \(P\) if and only if the fact that \(Q\) is either a cause of the fact that \(P\), or a ground of the fact that \(P\)\textsuperscript{31}.

Example (12) is not a counterexample to (3*), because the shapes of material things are grounded in the shapes of the regions of space they occupy\textsuperscript{32}.

One might object: (12) is not exactly what Nerlich wrote; there are other things about the cloud that Nerlich might have thought he was explaining; and those explanations might not be grounding explanations. Well, what are these other things? We might ask why the cloud currently occupies \textit{this} region of space. Answer:

\((13)\) One reason why the cloud currently occupies \textit{this} region is that it formerly occupied \textit{that} one; another reason why is that no forces acted on it.

Now we have reasons why that are not grounds. But this time they are causes. (13) does not differ from Brandon’s example in any interesting respect.

Maybe we still haven’t latched on to the explanation Nerlich aimed at. After all, neither (12) nor (13) cites the curvature of space as a reason why something is the case, yet this seems to be what Nerlich had in mind. So here is a third try. Why is it the case that the region the cloud currently occupies differs in shape from the region it formerly occupied?

I think this question is most naturally read as having several presuppositions. Let’s make them explicit. We are asking: given that the region the cloud currently occupies is the one you “get to” by moving a fixed distance along a collection of “straightest” line segments, all of which initially point in the same direction\textsuperscript{33}, why does the current region differ in shape from

\textsuperscript{30} Skow (2014) also formulates the thesis that all explanations of events are causal in a way that makes it immune to counterexamples involving grounding explanation.

\textsuperscript{31} Again, “\(P\)” is to be replaced by a sentence that describes the occurrence of an event.

\textsuperscript{32} This is, I suppose, mildly controversial. But the alternative view, on which facts about the shapes of material bodies are just as fundamental as facts about the shapes of the regions they occupy, faces serious problems. See (Skow 2007).

\textsuperscript{33} I put this claim in here because it seems to be a presupposition of the question. The question arises because the presuppositions create the expectation, for those who have Euclidean space
the former region? The answer to this does seem to be: because the space through which those lines pass is curved. So here, finally, the fact that space is curved is serving as a reason why something is the case. And it is certainly not a cause. Again, though, there is no threat to (3*). For one thing, the sentence that follows “why is it the case that” in the question, namely “the region the cloud currently occupies differs in shape from the region it formerly occupied,” does not look like it “describes an event.” If not it falls outside the scope of (3*) completely. Even if we set this point aside, what we have here is another grounding explanation. The curvature of a certain part of space grounds the fact that the region the cloud currently occupies differs in shape from the region it formerly occupied. [34]

8 Reasons why R is a Reason

The moral so far is that some proposed counterexamples to (3*) evaporate if we keep in mind the distinction between reasons that are causes and reasons that are grounds, and are sensitive to just what why question is being answered.

Another important distinction is that between

the reasons R why some event E occurred, and

the reasons why R are reasons why E occurred.

Sometimes, I think, we answer why questions by providing both kinds of reason. This is a natural thing to do in some circumstances. Schematically, some answers to why questions prompt a dialog like this one:

A: Why is it the case that P?

B: One reason why P is that Q.

in mind, that the two regions have the same shape, an expectation that is violated. But this particular presupposition is false, as Nerlich points out. There is no path-independent notion of “same direction” in curved space.

34Note that I am not saying, of two regions R1 and R2, that the curvature grounds the fact that R1 differs in shape from R2. I am making a de dicto, not a de re, grounding claim.
A: Whoa! I don’t understand. Why is it the case that Q is a reason why P?

B: ...

When we can foresee that the questioner (here, A) will immediately follow up with a second why question, we might preempt it and answer it as we are answering the initial question.\(^{35}\) And to answer A’s second question we must provide “higher-level” reasons, reasons why Q is a reason why P.

A reason why R is a reason why E happened is not automatically itself a reason why E happened. If it is not then it is also not a cause of E. So if we are not alert to the fact that a response to “Why did E occur?” might include both first-order and higher-level reasons, we might think we have found a reason why E occurred that is not a cause of E — a counterexample, that is, to (3*).\(^{36}\) That, in a nutshell, will be my diagnosis of the examples to follow.

I should say that when someone asks why P, and we can expect our answer to prompt a follow-up why-question, we do not always preemptively answer that follow-up question. We might not know the answer to the follow-up question. This kind of case illustrates the distinction between the two levels of reasons in a different way. I recently participated in the following dialogue:

A: Why is the museum so much more crowded today than last time?

B: Because today is Friday.

A: What does that have to do with it?

B: I don’t know, but that must be the reason.

In B’s second response, “I don’t know” is short for “I don’t know why the fact that today is

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\(^{35}\)This phenomenon, of preemptively answering expected follow-up questions, is not limited to cases where the first question is a why-question. I already gave one example of this, in section 6: Jones asks whether Smith is coming to the party, and Bloggs replies that Smith is sick. Bloggs conversationally implies that Smith is not coming by explicitly answering the expected follow-up question of why Smith is not coming.

\(^{36}\)Of course we only have a counterexample if the reason why is also not a ground of the fact that E occurred. But the existence of grounding explanations (of events) will not play an important role in the rest of the paper, so I will ignore it.
Friday is a reason why the museum is crowded.” But even though B did not know any higher-level reasons why its being Friday was a reason, he still knew a “first-level” reason why, a reason why the museum was crowded.

Confusing these two levels of reasons has a sterling pedigree in the history of the philosophy of explanation. Hempel’s D-N model of explanation says that explanations must cite laws. Counterexamples to this claim are everywhere. I knock an ink bottle with my knee, thereby spilling ink on the carpet. “The carpet is stained because I knocked the ink bottle over with my knee” is true but cites no law of nature. Hempel suggested that we regard this sentence as true because we all know of some laws of nature that could be added to get a sentence that meets his requirements; but his reply is unconvincing. Still, Hempel was not completely wrong to think that laws of nature are somehow relevant to some why question floating around. While no law is a reason why the ink spilled, some law is a reason why my knocking the ink is a reason why it spilled. Here that is again, slowly:

\begin{enumerate}
\item The fact F that I knocked it with my knee is a reason why the ink spilled.
\item No law is a reason why the ink spilled. \textit{But}
\item Some laws are reasons why F is a reason why the ink bottle spilled.
\end{enumerate}

Roughly speaking (16) is true because facts about the laws help ground facts about causation, and thus are reasons why those facts about causation obtain.

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37 See (Woodward 2003) for a sustained attack on Hempel’s reply.

38 Scriven (1959; 1962) said something related: he held that the law merely functions as evidence that justifies the belief that the knocking is a reason why the ink spilled, and accuses Hempel of confusing facts that justify an answer to a why question with the answer itself. (The ink bottle example is Scriven’s.) Scriven names his distinction that between “explanations and the grounds for explanations” (see 1962: 196). So by “grounds” he means evidence. I think a more plausible claim comes from mis-interpreting “grounds” to have the meaning metaphysicians like Rosen and Fine give it.

Interestingly, Hempel at one point writes in a way that suggests this alternative to his view. When he tells us that laws are essential to explanation he writes that “it is in virtue of such laws that the particular facts cited in the explanans possess explanatory relevance to the explanandum phenomenon” (1965: 337). I agree with this; what I reject is the idea that if C explains why E occurred in virtue of some laws, then those laws are also part of what explains why E occurred.
There are, of course, examples of explanations that seem to conform to the D-N model. I drop a rock and it falls unimpeded until it hits the ground at a speed of .45 meters per second. Someone asks why. I say

It landed at a speed of .45 m/s because I dropped it from 1 meter, and Newton’s theory of gravitation entails that, for short falls, the impact speed \( s \) is related to the distance fallen \( d \) by the equation \( s = \sqrt{\frac{2d}{g}} \), where \( g \) is the gravitational acceleration near the surface of the earth.

That this seems like a good answer looks like a problem for (3*), for the fact that \( s = \sqrt{\frac{2d}{g}} \) does not cause anything. But in fact there is no problem for (3*) here. The only relevant reason why the rock hit the ground at .45 m/s is the fact that it was dropped from a height of one meter (for this is the only relevant cause). But unless the questioner knows a lot of physics, just giving this reason in my response to his question will leave him confused. He will probably want to know why this fact about the height from which it was dropped is a reason why the rock landed with that speed. Since I am a good conversational partner, I will want to include an answer to this obvious follow-up question along with my answer to his initial question. So the fact that \( s = \sqrt{\frac{2d}{g}} \) appears in my response, not as a reason why the rock hit at .45 m/s, but as a reason why the height from which it fell is a reason why the rock hit at .45 m/s. The example only fits Hempel’s theory if we confuse the higher-level reasons why that I present in response to a question I was not actually asked with the first-order reason why that constitutes the answer to the explicit question.

I said that higher-level reasons are not “automatically” also first-order reasons why \( E \) occurred. But in some cases they are. The fact that there was oxygen in the room is a reason why [the fact that the match was struck is a reason why the match lit]\(^{39}\) And the fact that there was oxygen is also a reason why the match lit (because it, like the striking, is a cause). But this certainly does not hold in general. The fact that Suzy threw a rock at the window is not a

\(^{39}\)These brackets are just here to make this sentence easier to parse.
reason why the window remained intact, even though it is a reason why my catching the rock is a reason why the window remains intact.\[40\]

9 Equilibrium Explanations

One of the most famous “counterexamples” to (3) is Elliott Sober’s example of an equilibrium explanation. Let’s apply the distinction between the reasons why E happened, and the reasons why they are reasons, to this example.

The ratio of males to females in the current adult human population is very close to 1:1. Why? “The main idea” of R. A. Fisher’ explanation (1931), Sober reports, “is that if a population ever departs from equal numbers of males and females, there will be a reproductive advantage favoring parental pairs that overproduce the minority sex. A 1:1 ratio will be the resulting equilibrium point” (201). More specifically, a 1:1 ratio is a stable equilibrium point, which means that (i) if a population gets to a 1:1 ratio, it stays at that ratio, and (ii) if a population is not at 1:1, but is “close enough” to it, then its ratio moves towards 1:1.\[41\] Now Sober claims that this is not a causal explanation, since

a causal explanation...would presumably describe some earlier state of the population and the evolutionary forces that moved the population to its present configuration...Where causal explanation shows how the event to be explained was in fact produced, equilibrium explanation shows how the event would have occurred regardless of which of a variety of causal scenarios actually transpired. (202)

Later he expands on this claim: “Equilibrium explanations present disjunctions of possible causal scenarios; the actual cause is given by one of the disjuncts, but the explanation doesn’t say which” (204).

\[40\]Compare Yablo (2010) on “enablers” versus “ennobelers.”

\[41\]In this case the population does not have to be very close to be close enough. In fact as long as percentage of women is not 0 or 100%, the ratio will tend toward 1:1 (though genetic drift and chance events can derail this process).
Sober’s claim depends on a view about what the causes of the current sex ratio are. He thinks that the only relevant causes of the fact that the sex ratio is currently 1:1 are facts of the form *the sex ratio at time T is m:n*. I’m with those who reject this claim. The fact that the sex ratio in 1800 was m:n is too specific to be a cause of the current sex ratio. There is a less specific fact, the fact that the percentage of women in 1800 was not 0 or 100%, that is as well placed to be the cause. And when that happens it is the less specific fact that gets to be the cause.

But if the only relevant cause of the fact that the current sex ratio is 1:1 is the fact that the population was never all male or all female in the past, we are left with a couple of puzzles. The first comes from observing that everyone already knew that there have always been both men and women. But we did not already know the answer to the question why the sex ratio is currently 1:1. How can this be?

The solution to this puzzle is easy. Even if the fact that Q is a reason why P, knowing that Q is not enough for knowing the answer to the question why P. For the answer is “P because Q,” or “That Q is a reason why P,” and one can know that Q without knowing that the fact that Q is a reason why P.

The second puzzle is harder, but we now have the tools to solve it. If the only relevant cause is the fact that the population was never all male or female, then why is Fisher’s explanation so long, and so focused on things other than this fact? (In fact Fisher’s explanation does not really assert that this fact obtains; it merely presupposes that it obtains.) A Soberish answer is that all that other information Fisher provided added up to some non-causal reasons why the sex ratio is 1:1. But I think this is a level confusion. I deny that the information he provided

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42For example, Strevens (2008). The ideas motivating the rejection were first defended by Yablo (1992). Woodward (2003) also rejects Sober’s claim but does not explain his reasons.

43The details of how all this works need not detain us. One key idea is that the following conditional is true: if the ratio in 1800 had failed to be m:n, but had still been “non-extremal,” then the ratio today would still have been 1:1.

The claim that examples of explanations that, like Fisher’s, abstract away from the nitty-gritty details of the causal process that produced the event being explained count as non-causal is repeated by Batterman in, for example, (Batterman 2000: 28) and (2010: 2). Batterman’s examples fail to be counterexamples to (3) for the same reason Fisher’s fails.
adds up to a reason why the sex ratio is 1:1 at all, much less a reason that is not a cause. More fully, my answer is this. The fact that is a reason why the sex ratio is 1:1 is a fact we all know obtains, but it is also a reason we all would have been skeptical was a reason. We would not have accepted the claim that it was a reason, without some reasons why it was a reason. And that is what Fisher provided. What the information he provided adds up to are reasons why the past existence of both men and women is a reason why the current sex ratio is 1:1. Given the circumstances it is entirely sensible to focus most of one’s time on articulating these “higher-level” reasons, even though they are not reasons why the event in question (the sex ratio’s being 1:1) occurred.

10 “Distinctively Mathematical” Explanations

Marc Lange has recently described a class of explanations that he calls distinctively mathematical explanations, and argued that they are not causal explanations (Lange 2013a). My interest is not in whether his examples qualify as non-causal by his criteria, but in whether they are counterexamples to (3*). Here are two of the examples:

(17) “That Mother has three children and twenty-three strawberries, and that twenty-three cannot be divided evenly by three, explains why Mother failed when she tried a moment ago to distribute her strawberries evenly among her children without cutting any [strawberries]” (488).

(18) “Why did a given person [say, Jones] on a given occasion not succeed in crossing all of the bridges of Konigsberg exactly once (while remaining always on land or on a bridge rather than in a boat, for instance, and while crossing any bridge completely once having begun to cross it)?...[Because] in the bridge arrangement, considered as a network, it is not the case that either every vertex or every vertex but two is touched by an even number of edges. Any successful bridge-crosser would have to enter a

\[44\] Lange takes the examples from (Braine 1972) and (Pincock 2007).
given vertex exactly as many times as she leaves it unless that vertex is the start or the end of her trip. So among the vertices, either none (if the trip starts and ends at the same vertex) or two could touch an odd number of edges” (488-89).

Here is what Lange says about what makes these explanations distinctive, and about why they are not causal explanations:

these explanations explain not by describing the world’s causal structure, but roughly by revealing that the explanandum is more necessary than ordinary causal laws are (491).

There is definitely something right, and deep, in what Lange says. But I do not think that these examples are counterexamples to (3*).

My diagnosis of what is going on in these examples will again use my distinction between levels of reasons why. Let us start by focusing on (17). First a preliminary point. When mother fails to distribute the strawberries evenly among her three children she fails in a particular way. We may suppose that she just started handing out strawberries and when she finished found that one of her children had one fewer strawberry than the other two. (There are other ways she could have failed; for example, she could have tried to sort the strawberries into three even piles before giving any to the children.) But (17) is not aimed at answering the question why she failed in this particular way. All answers to this question are compatible with (3*). (Maybe she failed in this way because she couldn’t think of any other way to try; this fact is a cause of her failing in this way.) No, (17) is aimed at answering the question why she failed in some way or other.

Let’s step back and investigate what the causes are of the fact that mother failed (in some way or other). I think the fact that she had three children was a cause of her failure, as well as the fact that she had twenty-three strawberries. (Each passes a counterfactual test for causation:

45One might raise doubts about whether the fact that mother failed in some way or other “corresponds” to an event, and so falls under the scope of (3*) in the first place. I will not do this.
if she had twenty-three children instead, she wouldn’t have failed; if she had twenty-four strawberries instead, she wouldn’t have failed.) And that’s pretty much it; those are the only relevant, salient causes. On my view, these causes are the only relevant reasons why mother failed. So a relatively complete answer to the question why mother failed when she tried a moment ago to distribute her strawberries evenly among her children is: because she had three children and twenty-three strawberries.

But this is not the response Lange and Braine want to give to the question why mother failed. They want to also include in the answer the fact that three does not divide twenty-three. On my view, this mathematical fact is not a reason why mother failed. The problem is that Lange’s and Braine’s response sounds like a good response.

My take on this example will look familiar. I hold that a good response to a why-question can cite facts that are not part of the answer to that question. In many contexts, merely saying that mother failed because she had three children an twenty-three strawberries will leave the person who asked the question confused. They might immediately want to know why that is all there is to be said about why she failed. Or they might think you haven’t given them the complete answer, and will want to know what the other relevant causes of her failure are. If you can foresee these consequences, then (again) a natural thing to do is to answer the potential follow-up questions in the same breath that you answer the question asked. So you also point out that three does not divide twenty-three. The fact that three does not divide twenty-three is a higher-level reason why: it is a reason why the facts that mother had three children, and that she had twenty-three strawberries, were causes of her failure. And it is the reason why these facts

46The causes of mother’s failure also include, for example, the fact that she acquired twenty-three strawberries earlier in the day. These other causes are not relevant in this context.

47Maybe the fact that she tried is a cause of her failure. For maybe it is true that, if she hadn’t tried, she wouldn’t have failed. I however am not so sure this is right. Maybe, if I am standing on the sidewalk and do not even try to cross the street, I still count as having failed to cross the street. Maybe, in general, “X failed to Y” does not entail “X tried to Y,” but instead those who say “X failed to Y” standardly presuppose that X tried to Y. Anyway, if mother’s trying is a cause, I will ignore it.
were the only relevant causes. It is the reason why no other causes were needed to produce her failure.

The strawberries example only appears to be a threat to my theory if we confuse levels of reasons. Once we sort out that the mathematical fact that three does not divide twenty-three is not a reason why mother failed, but a reason why some facts are reasons why she failed, and once we see that it is natural to include this higher-order reason in a response to a request for first-order reasons, the threat evaporates.

What about the bridges of Konigsburg example? This example puzzles me more than the strawberries example. The reason why Jones failed to cross all the bridges exactly once that Lange gives is the fact that “in the bridge arrangement, considered as a network, it is not the case that either every vertex or every vertex but two is touched by an even number of edges.” This is a perfectly respectable physical property of the bridge set-up, even if it is a relatively non-specific property (it can be instantiated in a great number of physically different ways) that is expressed using graph-theoretic language [48]. On my view the fact that the bridge set-up has this property is a cause of Jones’s failure. After all, he would not have failed if every vertex had been touched by an even number of edges. This example does not even appear to threaten my view.

What is going on? Lange thinks it is important that Jones still would have failed if the laws of physics had been different, as long as we hold fixed the arrangement of the bridges, and the requirement that Jones always remain on land, not move discontinuously, and so on. Again, his general claim about the two examples is that “these explanations explain ... by revealing that the explanandum is more necessary than ordinary causal laws are.” [49] Here is my interpretation

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48One of Pincock’s original points about this example was just that the usefulness of the graph-theoretic language was that it allowed us to find the right level of “abstraction” for answering the question why Jones failed. (However, the graph-theoretic language does not seem to be essential. We could just as easily say that it is false that either every land-mass, or every land-mass but two, is touched by an even number of bridges.)

49Lange tries to put this point another way, by writing that “[t]he Konigsberg bridges as so arranged were never crossed because they cannot be crossed” (491). I do not find this way of
of what is going on. Nothing Lange says makes me doubt that the fact that the bridge set-up
has the property described is a cause of Jones’ failure. So what of Lange’s claim that “the
explanandum is more necessary than ordinary causal laws are”? This sounds to me like the
claim that the “ordinary causal laws” are not among the reasons why the bridge set-up is a
cause of Jones’ failure. Instead, some facts that are “more necessary” than the ordinary causal
laws are the reasons why the bridge set-up is a cause. This strikes me as true, and also very
interesting. It is interesting that there are cause-effect pairs C and E with the property that the
reasons why C is a cause of E are necessary truths, rather than “ordinary causal laws.” But this
interesting fact is no threat to (3*), for this interesting fact concerns higher-level reasons why
— reasons why C is a cause of E — not first-order reasons why some event E occurred.

By way of conclusion let me turn conciliatory. One of Lange’s main theses is that there
are non-causal explanations, and that (17) and (18) exhibit a particular species of non-causal
explanation. I have not claimed that there are no non-causal explanations, only that there are
no such explanations of events (other than grounding explanations). Maybe we will want to
distinguish between causal, and non-causal, “higher-level” explanations. Maybe we should say
that

(19) The fact that the percentage of males in the human population was never 0% or 100%

is the reason why the current sex ratio is 1:1, because when the ratio is not 1:1 natural
selection favors overproduction of the minority sex.

is importantly different from

(20) The fact that mother has three children is a reason why she failed to distribute twenty-
three strawberries evenly among her children, because three does not divide twenty-
three.

putting the explanation very illuminating. “No one has broken into Fort Knox because it cannot
be broken into” sounds just as good, but there is no special kind of necessity involved in Fort
Knox’s defenses. (In fact I suspect that the “cannot”s in these because-statements are epistemic,
not alethic, as Lange needs them to be. But this is a suspicion that I need to think more about.)
Maybe we should say that (19) but not (20) counts as a causal explanation (of a non-event!), and for the reasons that Lange gives: (19) cites “causal” laws, (20) cites laws that transcend them. Whether we should say this depends on whether the notion of a causal explanation can be extended beyond cases where what is being explained is why some given event occurred, and if so, how.

References


