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REPLY



## Reply to Audi, Bliss, Rosen, Schaffer, and Wang

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### ABSTRACT

I reply to five critics of my book. In particular, I tackle criticisms of my treatment of causation, relative fundamentality, and generativity. I also take on the question of my reliance on a possibly sketchy modal recombination principle, and what grounds the grounding facts.

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### 1. Causation

In the book, I claimed both that many ordinary building relations frequently obtain in virtue of causal facts, and that causation itself is a building relation. My commentators here seem pretty amenable to the former claim, but several of them vehemently resist the second one, which Schaffer calls '*Causing is Building*'. In this section – divided into several subsections – I will take up some of Audi, Rosen, and Schaffer's complaints about *Causing is Building*.

#### ***1.1. Differences between (deterministic) causation and other building relations***

Audi, Rosen, and Schaffer all point to various ways in which causation differs from traditional vertical building. One of these differences – that causation can be indeterministic, but building cannot be – I will take up in Section 1.2. In this section, I just want to make two points, one about a particular claimed difference, and the other a more general point about what *any* differences do and do not entail.

The particular claimed difference I wish to take up is that vertical building involves a more intimate connection than causation. All three

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critics think this; I take it to be the basic idea behind all of the following claims:

- causes need not ‘overlap’ their effects, but vertical builders must (Audi)
- effects are ‘something over and above’ their causes, but vertically built entities are not (Rosen)
- causation must hold between ‘separate and distinct portions of reality’ while vertical building must hold between ‘non-identical but connected’ portions of reality (Schaffer).

I would like to note two crucial points about this claimed difference.

First, the relevant notion of ‘overlap’ or ‘connection’ is hard to make sense of. As Audi notes (2019), I too once appealed to a notion of overlap (2011b, 91–92), indeed packing it into my initial characterization of what it is for a relation to count as a building relation (2011b, 90).<sup>1</sup> But I dropped it as I developed the ideas from that earlier paper into chapters 2 and 3 of the book. And the reason I dropped it is that the notion is rather mysterious. It obviously cannot be understood in terms of any vertical building relation – not given that the idea is to appeal to it in order to *characterize* vertical building, and distinguish vertical building from causation. Further (and as I argued in the earlier paper), it cannot be understood spatiotemporally. The claim would have to be that vertical building can only obtain between entities that spatiotemporally overlap, and that is clearly false. For one thing, there is what might be called ‘grounding at a distance’. The fact that I am a daughter, that I am a sister, that I am a mother – all of these facts are grounded in goings-on elsewhere and elsewhen. For another, there is no reason to think that vertical building relations could not obtain between location-less abstracta, if any there be. (The story in the book is intended to apply to a broad range of first-order views about what exists and what builds what.) In 2011b, I ended up positing overlap as a primitive. But I would rather not posit such a primitive if I do not need to, and the work that it did – aside from ruling out causation – is done by the generativity requirement, which I like much better. (I discuss the generativity requirement further in Section 5.)

Second, the claimed difference about the intimacy of connection is simply irrelevant. Perhaps overlap can acceptably be taken as primitive;

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<sup>1</sup>That older characterization of building also included the claim that building relations are relations of relative fundamentality. This I very intentionally removed from the book’s characterization of building, in order to allow for my account of relative fundamentality in terms of building – that would be circular had I left it in the characterization of what it is for a relation to count as a building relation.

perhaps it can be analyzed in some way I have not thought of. It does not matter. It does not matter because I never said there were no differences between causation and vertical building relations, and indeed I explicitly acknowledged that there are:

Perhaps causation involves the transmission of a conserved quantity, while vertical building does not. Perhaps causes are merely nomically sufficient for their effects, while the bases of vertical building relations are metaphysically sufficient for what they build. Perhaps built entities are nothing over and above what vertically builds them – in some sense of that contentious phrase – while effects are something over and above what causes them. Or perhaps vertical building ‘is sensitive to the natures of its relata’ (Audi 2012, 693) in a way that causation is not. (2017, 69)

Although I do not think any of my commentators are in fact confused on this point, I nonetheless will take this opportunity to remind everyone of what my claim *Causing is Building* is and is not, and what does and does not constitute an objection to it.

*Causing is Building* is the claim that there is a broad family of relations that includes causation and various vertical building relations like fact-grounding, composition, and property realization. It is the claim that those relations have various features in common, as spelled out in my characterization of building (what Schaffer calls *Building Relations*). It is *not* the claim that there are no differences between causation and those vertical building relations, or amongst the vertical building relations themselves. And it is *not* the claim that the broad class is more unified or more natural than the smaller class that does not contain causation. (For relevant discussion, see 2017, 69, 99–100, 168–169.)<sup>2</sup> That is to say: I accept what Schaffer calls the nested box picture. My label ‘building’ attaches to the class that he calls ‘explanation-backing difference-making relations’ and Audi calls ‘dependence’.<sup>3</sup>

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<sup>2</sup>Matters are complicated here by what I call ‘the second kind of causal taint’ in the book. While I do *not* claim that the broad class is more unified or more natural than the narrower subclass that does not include causation itself, I *do* claim that the broad class is more unified and more natural than a *different* narrower subclass – the one that includes neither causation itself *nor* any ‘causally tainted’ building relations. Or something close to that. It is a little tricky to formulate precisely, and I have realized that I wasn’t sufficiently careful about formulating in the book. There, I talk of causally tainted building relations, but it seems clear that what I meant was causally tainted *instances* of building relations. I am not sure of the best way to handle this, but here’s a stab in terms of instances: the broad class of *instances* of building relations is more natural than the narrower subclass of instances of building relations that includes no instances that obtain in virtue of causal facts. See particularly 99–100.

<sup>3</sup>‘Determination’ would be a better choice of label than ‘dependence’. One thing can determine another without the second depending for its existence on the first. Consider any case of overdetermination: the fact that something exists is built or determined by the fact that I exist, but does not depend upon the fact that I exist. Or consider any case in which the *aas* in fact compose *b*, but entities distinct from but largely overlapping the *aas* could compose *b* just as well.

We all agree, I take it, that the broad class exists. And no one should care too much what the labels are, or where they go. But one might well care – Schaffer certainly does – whether my treatment of absolute and relative fundamentality attaches to the broad class or the narrower subclass. I will take that issue up in Section 2. And Schaffer and Audi both care about whether the broad class really is sufficiently unified to ‘form a family’; more on that in Section 1.3. *Those* issues are where the action is. But first, I will take up the issue of whether causation and vertical building, in fact, share one of the features that I claim they share – whether they are both deterministic in the particular sense I articulate in §3.3.1 of the book.

### 1.2. Indeterministic causation

Both Rosen and Schaffer take it to be obvious that causation can be indeterministic, *contra* my remarks in the book. Schaffer takes this to mean that causation is not a building relation; Rosen thinks it should motivate me to revise the account to permit indeterministic vertical building.

My reply here comes in two incompatible parts. First, I will resist their arguments for indeterministic causation. I am not fully committed to the impossibility of indeterministic causation – and was not in the book – but I think matters are significantly less clear than Rosen and Schaffer make out, in interesting ways. Second, I will flip strategies and coopt their second argument as an argument for indeterministic building. The reason for this is that I remain much more committed to the idea that indeterministic building and causing stand or fall together than I am to insisting that both should fall – that is, than I am to insisting that both only work deterministically (cf. 2017, 81). I do remain somewhat inclined towards insisting that they are deterministic,<sup>4</sup> but those who are convinced that indeterministic causation is possible (or actual) should also think that indeterministic building is, as Rosen suggests.

Before doing all that, however, I want to quickly revisit and slightly expand upon the argument against singular indeterministic causation that I made in the book.<sup>5</sup> Call it the argument from luck:

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<sup>4</sup>This is not the same as insisting that determinism is true. If causation is deterministic, the ‘results’ of indeterministic processes are uncaused.

<sup>5</sup>On those pages, I also argue that it is a mistake to think that the existence of indeterministic singular causation is simply a matter of empirical fact, and emphasize that I am only talking about singular indeterministic causation, not probabilistic causal generalizations.

Event *A* only makes event *B* 90% likely. So if *B* does happen, what tipped the scales? If something else helped, then *A* is merely a partial cause of *B*, and the full cause is a deterministic one. And if nothing helped tip the scales, why say that *A* caused *B*? In such a case *B* seems to me to be random, uncaused by anything at all. (80–81)

Here's the slight expansion. I think the intuitions here are pretty robust when the probability is low. Suppose *A* only makes *B* 40% likely, or 10% likely – more likely than it otherwise would have been, but far from a sure thing. Further suppose that absolutely no other factors are relevant. There is a clear intuitive sense in which *A* did not make *B* happen, despite the fact that it raised *B*'s probability. Nothing made *B* happen. Now, I recognize that this intuition gets less and less robust as the probabilities get higher, for example, if *A* makes *B* 99.9999999% likely. But it would be *ad hoc* and arbitrary to identify a threshold, which means that either *A* is a cause in both cases or neither. My suggestion is simply that there is some pressure for 'neither'.

On to the Rosen/Schaffer arguments. They each offer two, but conveniently they offer the same two.

Here's the first one. If indeterministic causation is impossible, and if all apparent causation turns out to be indeterministic, it would follow that there is no causation at all. 'And that's nuts', generously concludes Rosen (2019). So, goes the argument, back up and deny the initial supposition that indeterministic causation is impossible.

I do in fact agree that *if there is good reason* to think that all apparent causation is indeterministic, it would be better to allow indeterministic causation than to claim that all causation is illusory. To say otherwise would fly in the face of reasonable assumptions about reference. But do we actually have good reason to believe the universal indeterminacy hypothesis? All Rosen says is 'for all we know, all of the apparent causation in our world' is indeterministic. Well, for all we know, we're constantly being deceived by an evil demon! The bare epistemic possibility of universal indeterminacy will not do; we need a better reason to take the suggestion seriously. And presumably that better reason comes from quantum mechanics, as Schaffer points out. But not even quantum indeterminacy definitively establishes that the world is indeterministic through and through. Some interpretations of quantum mechanics effectively make quantum indeterminacy trickle up, as it were, making everything indeterministic, and others do not. It is not my place to decide between these theories. I simply note that it is unclear to what extent the decision between them is empirical, and to what extent it is philosophical. At any rate, I think

an option that should be on the table is that the nonfundamental facts are deterministic, despite being ultimately grounded in indeterministic processes. That would permit deterministic causation in a fundamentally indeterministic world. Overall, then, I claim that the first argument is inconclusive. We need a better reason to think that all apparent causation is indeterministic.

The second argument makes no claim about what causation is universally like, but instead appeals to particular putative examples of indeterministic causation. Schaffer uses David Lewis' (1986) example of a Geiger-counter-toting terrorist; Rosen offers a variant involving indeterministic poison (so violent, the causation literature!). Now, I have indeed read my Lewis, and feel the power of examples like this. But I nonetheless exercise my right to question them, for they need closer scrutiny.

The crucial thing to note is that what is immediately being assessed in these cases is not *causal* responsibility but *moral* responsibility. This is no accident; it is a good part of why the examples seem so powerful. The way these arguments really work is this: we intuitively judge that the villains are morally responsible for the bad outcomes, and then we are supposed to infer from this that they are causally responsible for the bad outcomes. But there are alternate ways to treat the cases that block the inference to causal responsibility. Here's an option: claim that there can be moral responsibility without causal responsibility, so that the villains in these tales are morally responsible for the deaths even though there is no indeterministic causation. Here's another option: insist that moral responsibility does indeed require causal responsibility, deny the possibility of indeterministic causation, and instead claim that the villains are only morally responsible for the outcomes that are deterministically produced – in particular, for setting up the Geiger-triggered bomb and for slipping the poison into the tea. On this second line, the chain of moral responsibility stops short of the final, indeterministic, outcome. But the villains did set the stage for the deaths in a way that no one else did.

Should we in fact pursue either of those options? It's hard to say, because matters here are closely related to the puzzle of moral luck. What has come to be known as the 'control principle' states that we can only be held morally responsible for things that are under our control – a slightly stronger claim than that moral responsibility requires causal responsibility.<sup>6</sup> As Thomas Nagel nicely articulates (1979), this principle

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<sup>6</sup>It is stronger because while everything that is 'under my control' is something I am causally responsible for, it is not the case that everything that I am causally responsible for is 'under my control' in the sense Nagel has in mind. Suppose someone loses their balance when the subway stops, bumping into me,

is intuitively plausible, and yet conflicts with a great many of our ordinary moral judgments. It conflicts with our practice of holding people morally responsible for hitting pedestrians in crosswalks – after all, they did not put the pedestrians there – and it conflicts with holding the Rosen/Schaffer villains morally responsible for the bad outcomes. We can render our moral practice more coherent by revising it in either of two ways, which map on to the two options I just mentioned. We can deny the control principle and the thought that moral responsibility requires causal responsibility. Or we can keep those claims, and hold people morally responsible for less: for their deterministically caused actions rather than the indeterministic final event. The danger, of course, is that ‘the area ... of legitimate moral judgment ... shrink[s] under this scrutiny to an extensionless point’ (Nagel 1979, 35). Famously, Nagel thinks we cannot, in fact, revise our moral practice in either of these ways. This is not the place to solve this puzzle, nor to properly argue that either way is better than claiming that the villains truly cause the bad outcomes. My main goal is simply to show that the quick putative examples of indeterministic causation are not *nearly* as clearcut as they may initially seem.

Now, I will switch strategies. I will stop resisting the Rosen/Schaffer argument for indeterministic causation, and will instead apply it to the case of building. Again, my main claim here is that the two go together: either both indeterministic building and causing are possible, or neither is. As for myself, I remain somewhat inclined towards determinism in both cases. But I note that my resolve is weakened. In the book, I make two arguments for building determinism (50). Jennifer Wang has convinced me that the second argument is question-begging; see Section 3 on modal recombination. And the first argument, from luck, is exactly the same as my argument against indeterministic causation (80–81). So those like Rosen and Schaffer who do not find it convincing in the causal case should not find it convincing in the case of building either.

To see the new version of the Rosen/Schaffer argument, start by considering the following deeply unorthodox view in the philosophy of mind: conscious states are probabilistically based in physical states. A person whose brain is in neural state *N* has, say, an 85% chance of being in experiential state *E*. Nothing else makes any difference to whether *E* occurs; ‘as careful science shows, there are no hidden variables’ (Rosen 2019). Call this view phenomenal indeterminism.

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which in turn leads me to bump into you. I am causally responsible for bumping into you even though it is not under my control.



Now, an interesting side question is whether or not phenomenal indeterminism should count as physicalist. I relegate this to a footnote,<sup>7</sup> because it really is a side question; it does not matter to my argument. All we need to assume is that a person's being in neural state *N* makes it 85% likely that she is in phenomenal state *E*, and that nothing else contributes in any way to whether the person is in *E*. Let me further stipulate that *E* is a state of intense, agonizing pain. Enter stage left our villain, who pushes a button that deterministically causes some poor sap to be in neural state *N* – and, on this particular occasion, also experiential state *E*. Has the villain done something wrong? I do not see how Rosen and Schaffer can say anything but 'yes'. Indeed, I too say 'yes'. Does this show that whatever relation binds *N* to *E* is an indeterministic form of building?

Maybe, maybe not. I submit that this case is exactly as compelling – or not compelling – as Rosen's poison example and Schaffer/Lewis' Geiger-counter-terrorist example. If you take those examples to show that there is indeterministic causation, you should take my example to show that there is indeterministic building. If you do not take my example to show that there is indeterministic building, you should not take their examples to show that there is indeterministic causation. I have provided some tools for resisting their examples; they remain ready and waiting for use here.

Again, my own inclination (at least in some moods) is to wheel out my argument from luck, deny that *E* is built, and invoke a different strategy for holding the villain morally responsible without being causally or buildingly responsible for the victim's pain. But as I said above, I am satisfied with the weaker claim that one's views should be the same about indeterministic building and indeterministic causing.

Whichever way one chooses to go, it is important to recognize that *Making Things Up* should be read as a theory of building and fundamentality that, as Lewis said about his initial theory of causation, 'works properly under determinism' (1973, 559; cf. my 2017, 81). Actually accepting the possibility of indeterministic building would obviously require serious revision of many of the claims in the book: my discussion of the necessitation

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<sup>7</sup>In favor of a 'yes' answer: the view is arguably consistent with the claim that the indeterministically generated mental states are not fundamental, but rather fully built from the relevant physical states. (This of course requires denying building determinism.) In favor of a 'no' answer: the view denies that mental states strongly globally supervene on physical states, which we all have been inculcated to think is the bare minimum required for physicalism. Indeed, as I point out in the book (51), if this kind of view *could* count as physicalist, a new reply opens up to zombie arguments for dualism. All the physicalist needs to do is point out that, given indeterministic building, the physicalist claim that mental states are fully built from physical ones is compatible with the genuine metaphysical possibility of zombie worlds. The fact that no one ever does make this move suggests that everyone implicitly assumes either that indeterministic building is impossible, or else that views that rely on it are not genuinely physicalist.

requirement (2017, §3.3.2), my probabilistic argument for the Laser (223), and so forth.

### 1.3. Motivations, explanations, unity

Schaffer is underwhelmed by my argument for *Causing is Building*, and Audi relatedly suspects that the various relations are ‘too loosely associated to form a family’ (2019). Let’s take a look.

Schaffer characterizes my argument for *Causing is Building* as follows. He says that I point out – and he agrees – that ‘there are many deep analogies between causation and other building relations’ (2019), and offer *Causing is Building* as the best explanation of those analogies. He then ‘disagree[s] that *Causing is Building* offers any reason why the analogy holds ... [It] cannot explain why it is that causation resembles the other building relations. It does not *explain* the analogy but just *restates* it’ (2019).

I protest: this complaint is unfair. It trades on a vague appeal to ‘the analogies’. I agree that it would be appropriate to be underwhelmed if someone were to say, ‘there are analogies between building and causing – and you know why? Because there are analogies!’ But that is not a fair characterization of my strategy. One set of analogies are the features I put into my characterization of building, which Schaffer calls *Building Claims*: that causation and other building relations are all irreflexive, asymmetric, necessitating-in-the-circumstances (at least bracketing the issues from the previous subsection!), and generative in my particular sense. A *different* set of analogies are the ones I discuss in §4.2.1 of the book: the issues about Humeanism, well-foundedness, exclusion, and building roles that I claim arise for both causing and vertical building. I claim that the existence of the latter set of analogies – more specifically, the potential for *illumination by analogy* – is explained by the former points of similarity. (I do not offer an explanation of the former similarities. More on that in a moment.)

Schaffer also says that

barring a substantive discussion as to why relations that all fit *Building Claims* should also be ones for which controversies about Humeanism, well-foundedness etc. arise, we are given no reason to think that these points of analogy should be common to the family resemblance class, rather than among the family of differences between them. (2019)

I confess I took it to be obvious that the analogous questions do in fact arise for both causation and vertical building, which is why I did not

more than call attention to them. But I take it that what Schaffer really wants is an explanation of *why* they arise: why should relations that meet *Building Claims* be ones for which the relevant questions arise? This is a good question, and I should have addressed it in the book.

Luckily, I do not think it is a very difficult question. Here are a few gestures towards an answer. One part of *Building Claims* is that both 'vertical' building relations and causation are generative. Natural question: can a single phenomenon be fully generated by more than one such relation? Reflection on this question leads straight to the exclusion problem. Another natural question: how do these different ways of generating interact? Could there be an entity that is uncaused but built, or unbuilt but caused? And now we are reflecting on the different *ex nihilo* principles that I articulated. Another part of *Building Claims* is that 'vertical' building relations and causation are *directed* in the sense that they are asymmetric and irreflexive, which gives them an input-output structure. Natural question: must chains of instances of directed relations have a beginning, or an end? And now we are wondering about well-foundedness. And so on. Finally, another (disputed!) part of *Building Claims* is that 'vertical' building relations and causation are both necessitating in a particular sense. But ... necessitating? Between numerically distinct relata? And now we are into questions about Humeanism. Now, I do not claim that anything in this paragraph is particularly tidy or fully cashed out. But I do think there is a fairly clear progression from the features I lay out in *Building Claims* to the cluster of issues that I put on the table in §4.2.1.

I also think these general kinds of thought go some distance towards Audi's concerns in his section 2. When he wonders whether he is committed to the claim that mental properties and moral properties form a family, what is bothering him is in the same vein as what is bothering Schaffer: why think that properties that are similar in some ways must also be similar in others? Well, the answer depends on what exactly the similarities are. When Audi tells his students that they don't need to study metaethics if they've studied philosophy of mind, he presumably has something more substantive in mind than that moral and mental properties are both nonfundamental. If he can articulate the similarities he sees between the two kinds of properties, he may be able to draw out other similarities, or explain why certain questions arise in both cases.

Finally, I want to close this subsection by considering Schaffer's claim that he has an explanation of the analogy between causation and vertical

building or grounding. He says this repeatedly, especially in section 5. The explanation is supposed to be driven by his claim *Separate Species*:

*Separate Species*: Grounding(/building) and causation are separate species of generative, explanatory, difference-making relations. (2019)

Some care is required here, as it was above. We need to be clear about what exactly the explanandum is when he speaks of ‘explaining the analogy’. We also need to be clear about what exactly the explanans is – that is, about which piece of Schaffer’s story is really doing the explaining. The frequent appeal to *Separate Species*, as stated above, is, I think, a little misleading.

I initially (and mistakenly) read Schaffer as saying the following. The explanandum is the list of features that causation and building have in common. The explanans is the fact that they both belong to a group that has some features in common – they are generative, explanatory, fruitfully formalized using structural equations, and so forth. On this reading, though, there simply is no substantive explanation. This would precisely be the kind of failure of which he accuses me: there is no explanation of the analogy, just a restatement of it.

But this is not his actual story. The actual story comes through most clearly in a remark in a footnote: ‘in speaking of a genus of difference-making, I embrace the doctrine that Bennett (*MTU*: 22) labels *Generalism*: “there is a most general building relation of which the others are versions” (note 12). That is, I think the real work here is being done *not* by the claim that causation and grounding are separate species of difference-making relations, *plural*, as *Separate Species* states, but rather by the claim that they are distinct versions of a *single relation* that obtains whenever one of the more specific varieties does. To make this explicit, let’s edit *Separate Species*:

*Separate Species\**: Grounding(/building) and causation are separate species of a single generative, explanatory, difference-making relation.

With this claim in play, Schaffer’s actual picture is that grounding and causation share certain features because they are versions of a relation *R*, and *R* has those features. The explanandum is as I initially thought, but the explanans is different.

I grant that *this* does constitute an explanation of the similarities between grounding and causation. However, I deny that it is a very deep one. What if I were to ask why *R* has the relevant features? Or, in his own lingo, what if I were to ask why the general relation of

difference-making is explanation-backing? I suspect the response would be a shrug, and the claim that explanation has to bottom out somewhere. I have no real problem with that response; I simply ask the reader to note that all that has been gained is a tiny explanatory step.

To see what I mean here, consider my own position. I agree that I offer no explanation of why building relations share the features that my characterization *Building Claims* lists. To connect this to my complaint a few paragraphs above: I *do* think that *Building Claims* explains the distinct points of analogy from chapter 4. What I do *not* think is that there is a substantive explanation of *Building Claims* in the offing. However, I do not take this to be problematic, and certainly do not take it to motivate Generalism. After all, to expect an explanation here is to expect a substantive answer to questions like these: why are composition, causation, and grounding all asymmetric? But if there is a substantive answer to that, there must also be a substantive answer to the individual sub-questions like: why is grounding asymmetric? And I do not think those questions have a substantive answer. Grounding just *is* asymmetric. I can offer reasons to *believe* that it is, and I can offer you *theoretical advantages* that come with believing that it is (§3.2.2). But I cannot tell you *what makes it the case* that grounding is asymmetric. It's just part of what it is to be grounding. And causation. And composition. (Compare: why isn't it the case that grounding only obtains between facts that constitutively involve purple things? It just ... doesn't, and if you think it does, you have changed the subject.)

So my answer to, 'why do all building relations have the features I list in my account (which Schaffer calls *Building Claims*)?' is 'that's just part of what it is to be those relations'. Schaffer, in contrast, answers that question with 'because they are both versions of a more general relation which has those features'. But his answer to 'why does that more general relation have those features?' will surely be 'that's just what that relation is'. I do not take this to be a significant explanatory advance.

Now, my discussion thus far has glossed over the fact that Schaffer and I do not say the exact same things about what features causation shares with vertical building/grounding<sub>Schaffer</sub>.<sup>8</sup> For example, he gives pride of place to the fact that they are both amenable to formal treatment *via* structural equations. I have two main thoughts. The first is that, as he notes, we were writing at the same time. (The book was written

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<sup>8</sup>I agree with Schaffer's footnote 1, in which he identifies grounding<sub>Schaffer</sub> with (vertical) building<sub>Bennett</sub>.

between roughly 2011 and 2016.) The second is that I am fully amenable to the claim that causation and vertical building share *more* features than I have said. I did (47–48; 68–69) briefly discuss the fact that building, like causation, is typically reflected in certain patterns of counterfactual dependence, and that the reason it is not true that it *always* sustains those counterfactuals is the same reason that causation does not: preemption, overdetermination, and the like.<sup>9</sup> Insofar as structural equation models constitute a sophisticated counterfactual approach that can better handle such cases, I am perfectly amenable to the claim that another feature shared by causation and (vertical) building is that they are both well-formalized in that way.

At any rate, the important takeaway here is that Schaffer and I are much closer to agreement than my discussion so far suggests. Our primary points of disagreement are:

- whether generalism is true (Bennett agnostic,<sup>10</sup> Schaffer yes),
- whether causation and building differ on whether they can happen indeterministically (Bennett no, Schaffer yes), and
- whether absolute and relative fundamentality are to be analyzed in terms of the relations in the broad class that includes causation, rather than the ‘nested box’ that does not (Bennett yes, Schaffer no).

I have not yet addressed that last claim; I will do so in the next section.

## 2. Fundamentality and conceptual revision

Here I have both a friend and a foe. In the friend corner is Bliss; in the foe corner is Schaffer.

Bliss is sufficiently on my side that she offers further arguments against primitivism about relative fundamentality. To which I reply: thanks! She is right that Sider’s purity principle can be used to argue against the claim that the relative fundamentality facts are fundamental, in exactly the way it can be used to argue against the claim that the grounding facts (or building facts more generally) are fundamental. I think she is also right that the primitivist about relative fundamentality may well deny purity. And I think that if anything she understates how strange the

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<sup>9</sup>I confess that I have not thought very hard about whether cases of building double prevention are possible.

<sup>10</sup>I discuss generalism, and my agnosticism about it, in more detail in my reply to Cameron (2019).

resulting position is. She does it as relations without relata: ‘how can there be relations if there is nothing there to relate?’ (2019). Here’s another way to think about the picture. Suppose that  $b$  is more fundamental than  $a$ , and that neither  $a$  nor  $b$  is fundamental. By primitivism about relative fundamentality, the fact that  $b$  is more fundamental than  $a$  is itself fundamental. By the platitude (141) that anything fundamental is more fundamental than anything nonfundamental, it follows that the fact that  $b$  is more fundamental than  $a$  is more fundamental than  $b$ . This certainly feels wrong, though I admit I find it difficult to articulate exactly *what* is wrong with it.<sup>11</sup>

My foe is Schaffer, who correctly points out that the combination of *Causing is Building* and my treatment of absolute and relative fundamentality in terms of building lead to the following seemingly unpalatable claims: causes are more fundamental than their effects, and nothing but the initial conditions of the universe can be ‘all-out’ fundamental. Jessica Wilson makes similar complaints (2019). In my response to her (2019b), I pretty much repeated what I said in the book (§6.6.2). I now have a little more to say. In the interests of brevity, I will confine myself to the relative fundamentality consequence, that causes are more fundamental than their effects. It should be clear enough how to extend my remarks.

Here is what I said in the book. First, the claim is not problematic when properly understood. Relative fundamentality relations are indexed to particular building relations, so the claim is just that causes are more fundamental than<sub>causation</sub> their effects. And relative fundamentality is nothing more than patterns of building relations. So the claim that causes are more fundamental than<sub>causation</sub> their effects is just the claim that causes are causally prior to their effects. Second, I acknowledged that our ordinary notion is vastly more closely tied to vertical building relations like grounding than to the broader class that includes causation. I was and am being deliberately revisionary.

However, while I did make this second point in the book (169), I did not sufficiently emphasize or explain it. I am grateful that Schaffer notices this ‘concessionary follow-on’ (2019), and my claim that my refusal to move to what he calls *B → MFT Indexed without Causation* is a rhetorical decision. This is what I wish to expand upon now.

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<sup>11</sup>I’m tempted to say that the problem is that it cannot be the case that a fact about an entity is more fundamental than the entity itself. But I don’t think that’s it. That principle is violated by the version of David Armstrong’s view according to which facts are prior to individuals, and individuals are abstractions from facts. And while I don’t agree with that view, I don’t see anything obviously incoherent about it.

It will be helpful to temporarily set aside causation and relative fundamentality in order to look at the broader question at hand. What is at issue here is how closely a theory of  $X$  – whatever  $X$  may be – must hew to our pretheoretical judgments and intuitions. Schaffer talks as though there are only two choices: either offer a story about  $X$  that works perfectly as a piece of conceptual analysis, or let go of ordinary judgments altogether and offer ‘mere linguistic stipulation’.<sup>12</sup> But matters are more subtle than this, in important and independently interesting ways. I claim that it can sometimes be the case that the best theory of the nature of  $X$  is not impeccable as a piece of conceptual analysis, but nonetheless is not arbitrary linguistic stipulation along the lines of saying, ‘let’s use the term “person” so that walnuts count as persons’. That is, I claim that in some cases there are reasons to offer a revisionary theory of  $X$  that neither fails nor changes the subject.

What is really at issue here is what Hermann Cappelen calls ‘conceptual engineering’ and what David Plunkett and Alexi Burgess call ‘conceptual ethics’ (Burgess and Plunkett 2013; Plunkett 2015; Cappelen 2018; Cappelen and Plunkett, *Forthcoming*). And this topic involves many big hard questions that I will not address here: are we talking about revising concepts, or word meanings, or beliefs? What are concepts, anyway? How is any of this compatible with externalism? For convenience, I will largely talk in terms of conceptual revision, but it does not in fact matter to me whether the phenomenon is best understood that way, or as replacing concepts with different ones, or in terms of word meanings, or what have you.

What *does* matter to me is that revision, however understood, does not always amount to changing the subject. As Cappelen puts it,

*what we talk about and what we say is more coarse-grained than extensions and intensions ... [we can] have continuity of talk and thought ... we can talk about the same topic, e.g. knowledge, belief, freedom, or marriage, even though the extension and intension of ‘knowledge’, ‘belief’, ‘freedom’ and ‘marriage’ change. (2018, 103; italics original)*

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<sup>12</sup>I particularly have in mind this passage:

Of course if all Bennett meant to do was stipulate that ‘relative fundamentality’ includes causal priority (or anything else) her claim would hardly be objectionable, but merely uninteresting. She would just be talking past everyone. But Bennett is not offering a mere linguistic stipulation. After all, she (*MTU*: 102) thinks that fundamentality is ‘an ordinary folk concept’ and indeed (e.g. *MTU*: 138) is at pains to capture intuitions about relative fundamentality, describing (*MTU*: 140) her methodology as involving ‘conceptual analysis’ and saying that the account ‘needs to be intuitively plausible’. (2019)



How exactly should we individuate ‘subjects’ or ‘topics’? I have no idea, and cannot take the question up here. (See Cappelen 2018, chapters 9–11, for more.) Still, the following two points seem to me to be unassailable.

First, staying ‘within the limits’ of a subject does not require adhering to every folk intuition. It may be, for example, that a bodily continuity theory of personal identity fails to accommodate the fairly widespread intuition that so-called ‘body-swap’ cases are possible. That may or may not be a reason for rejecting the theory, but it is certainly not a reason to insist that it is not even a theory of personal identity, but something else altogether. Clearly bodily continuity theories and psychological continuity theories are both on the same topic; they are competing theories of personal identity that prioritize different intuitions. Probably neither of them is wholly successful as a piece of conceptual analysis. (I myself vacillate between thinking that we do not have a coherent concept of a person, and thinking that we think of ourselves as immaterial souls.) So, something can be a live candidate theory of *X* even if it fails as a perfect piece of conceptual analysis of *X*. Second, there *are* limits. Contrast the psychological and bodily continuity theories with the following theory of personal identity: *x* at  $t_1$  and *y* at  $t_2$  are the same person if they are holding the same kind of object in their right hand. *Now* we are in the land of subject change. Either I have offered a spectacularly bad theory of personal identity, or I have changed the subject to offer a theory of the persistence conditions of something other than persons.

Here is where we are so far: there can be reasons to offer a revisionary story about some phenomenon, a story that does not line up with all of our pretheoretical intuitions. The mere fact that it is revisionary does not mean that it is ‘mere linguistic stipulation’, and does not automatically mean that it changes the subject.

Next question: why be revisionary? Or, to use Sally Haslanger’s terminology (2000, 2012), ‘ameliorative’? Sometimes, as in the cases that primarily interest Haslanger, the reasons are moral or political. For example, it at least used to be the case that the ‘ordinary’ notion of a family was pretty biological and heteronormative, in a way that was exclusive of adoptive, gay, or blended families. There is good reason to revise that concept, or drop it in favor of an improved one (Haslanger, [forthcoming](#)).<sup>13</sup> And Haslanger also argues that it is

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<sup>13</sup>Again, I am remaining silent about the individuation conditions of concepts. I do not care whether it is better characterized as the revision of a single concept or replacement with a different one. What I *do* care about is that the later, more politically correct concept is still a concept of family. No subject change has occurred.

politically useful to understand the notion of a woman in a way that packs in oppressed status, even though that does not seem to be part of our ordinary, pretheoretic understanding of womanhood (2000, 2012).

Other cases involve more epistemic, cognitive, or logical reasons for revision. For example, it might be that some ordinary concept simply gets reality wrong in the sense that nothing answers to the concept.<sup>14</sup> Or it might be that our ordinary concepts fail to ‘carve reality at the joints’, as Ted Sider says of the deployers of ‘bred’ and ‘rue’ in the opening pages of *Writing the Book of the World* (2011). Or it might be that our pretheoretical intuitions are not mutually compatible (this may be the case with our concept of a person).

Here’s a kind of case that I find especially interesting: when certain concepts, or kinds of concept, do not necessarily get reality wrong, but nonetheless encourage *bad cognitive habits* – patterns of thinking that are likely to lead to error. A great example is Sarah-Jane Leslie’s contention that thinking in terms of generics encourages hasty generalizations and the essentialization of social kinds (2017). Deploying generics about groups of people does not in and of itself get reality wrong; there *are* men, and Muslims, and so forth, and there are true statements using those generics. Rather, the problem is that thinking and talking in terms of those generic kinds apparently encourages poor cognitive habits, such as generalizing based on only a few cases.

I hereby introduce, or call attention to, a different kind of way in which the deployment of certain concepts can encourage bad cognitive habits. I call this ‘wrong-graining’. A thinker’s conceptual repertoire *wrong-grains* reality when it either is too coarse-grained, occluding differences, or is too fine-grained, occluding similarities. Deploying such concepts leads to poor cognitive habits in that doing so makes it hard to accurately see similarities and differences. This is not a matter of failing to carve at the joints in Sider’s sense. Concepts that wrong-grain do carve at the joints – just not the right joints.

Here are some toy examples. Imagine a culture – or alien species, or whatever – that has a word for and concept of squareness, and that has a word for and concept of non-square rectanglehood, but no word for or concept of rectanglehood in general. They have no way of thinking about the fact that squares and rectangles belong to a broader category. Their concepts are too fine-grained in a way that blocks them from seeing

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<sup>14</sup>Externalist considerations make this kind of case tricky.

the similarities. Or imagine a culture that has the opposite problem: they have a word for and concept of rectanglehood, but absolutely no notion of squareness. They too are missing out; their concepts are too coarse-grained. Or, to go to a more extreme pair of examples: imagine a culture that has only general terms and concepts, and no names or concepts for individuals. Or a culture that only has the opposite: no general terms or concepts, only names for particulars. Again, they are carving reality at the joints, but not at all the right joints. They are both wrong-graining.

Now, I don't mean to suggest that there is a clear or univocal answer as to what the 'right level' of grain is. It may depend upon the topic at issue; it may depend upon what the regularities or laws are; it may depend on the purposes of the people who deploy the concept.<sup>15</sup> Still, the basic idea is fairly straightforward, and I think straightforwardly right: when the relevant concept-deployers have the ability to perceive and understand certain similarities and differences, but their available words and concepts hinder or even outright prevent them from doing so, those words and/or concepts are in need of some tinkering.

One might think that wrong-graining can't motivate revision or replacement of concepts or meanings, but can only motivate the generation of additional terms or concepts. After all, goes the thought, my claim is that in some cases the existing concepts and terms are not adequate to represent everything we want to represent about the world. There aren't, as it were, *enough* concepts or terms to do the work. So while it's correct to say that in such cases the overall *stock* of concepts or terms needs to be modified – the lexicon needs new entries – it is not correct to say of any particular concept or term that *it* needs to be modified or replaced.

I disagree that this is always the case. Some instances of wrong-graining may be perfectly well ameliorated by the introduction of additional conceptual and/or semantic resources, leaving the existing ones untouched. But some are in fact better ameliorated by changing or replacing the existing resources. Let me offer a parable.

Imagine a culture that has words for and/or concepts of *husband* and *wife* but not for *spouse*. Further imagine that this is a steeply hierarchical society in which husbands are given priority in various ways, and have

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<sup>15</sup>For example, if I flesh out the story of the no-concept-of-a-square culture so that they literally are incapable of perceiving or measuring length, suddenly it doesn't sound all that problematic that they have no way of distinguishing equilateral rectangles from ones that are not equilateral. I mean, I don't suppose *cats* have much use for the distinction.

special rights that wives do not have. The lack of a shared concept would likely contribute to those differences, as their too fine-grained concepts would encourage poor cognitive habits and entrench the perception of gender difference. It also involves a purely epistemic failing: how can they *not see* that to be a husband and to be a wife is just the same thing, and that the gender differences matter not compared to the contributions to marital structure, the shared intentions to live a life together, etc.? How can they not see that being a husband and being a wife are just two different versions of a shared broader category?

Of course, a possible response to this epistemic failing would simply be to introduce an umbrella concept. But one might think that that's *not enough*, particularly in light of the political situation. One might think that the introduction of the term/concept 'spouse' is just not going to change the fact that people will continue to think really disjunctively about what it is to be a husband and what it is to be a wife. So one might instead think that the more radical thing to do, to emphasize the underlying essential sameness, to encourage better cognitive habits, is not to add in a third concept or term, but rather to *expand one of the existing ones*.<sup>16</sup> In other words, what is being advocated here is a kind of horizontal assimilation<sup>17</sup> rather than the mere addition of the more general umbrella concept. One can certainly imagine the activists' political slogan: Wives are husbands too.

There are two crucial things to notice about what the activists are doing. First of all, they are making a claim about what it is to be a husband that simply does not jibe with existing usage. They would be advocating for a quite revisionary use of the term 'husband', and offering a view about what it is to be a husband – namely, to be a person married to another person – that completely fails as a piece of conceptual analysis, both in their imaginary world and in our actual one. Second, the activists are advocating for a revisionist view that may well have no hope whatsoever of gaining traction. It is possible to recommend revision without expecting anyone to in fact follow that recommendation. There can be epistemic and/or political reasons to advocate for it anyway.

The parallels between the activists' chant and what I have said about causation and relative fundamentality may be obvious, but I will walk through it nonetheless. In the book, I argued that relative fundamentality

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<sup>16</sup>Again, I am being pretty careless about exactly how one should individuate concepts or terms. Perhaps the move here would be better described as introducing a homonym for one of the existing terms, or something along those lines.

<sup>17</sup>Thanks to Gideon Rosen for the phrase; I initially had a much worse one.

reduces to patterns of building relations, and count causation among the building relations. This has the counter-intuitive consequence that causes are more fundamental than their effects. Schaffer says: *quelle horreur!* This fails as a piece of conceptual analysis! I say: right, of course it does. I fully agree that our pretheoretic notion of relative fundamentality is tied to the subset of building relations that excludes causation (cf. 2017, 169). I fully agree that I am advocating for a revisionist usage that fails as a perfect piece of conceptual analysis. And I fully agree that I am advocating for a revisionist usage that has little chance of widespread uptake. When I said that it is 'a rhetorical decision' (169), what I meant but did not unpack is that it is a move akin to the decision of the activists in our parable.

Indeed, it is motivated by exactly the same kind of wrong-graining as motivates the activists. At least up until very recently – recall that I was writing before the publication of Schaffer (2016) and Wilson (2018) – philosophers have used 'causally prior to' and 'more fundamental than' (implicitly linked to non-causal building) as entirely distinct concepts and terms, with no acknowledgement that they are deeply similar. Thinking only in terms of those two concepts leads to poor cognitive habits in just the same way as the husband/wife example earlier. It occludes the similarities and contributes to taking grounding-based relative fundamentality very seriously, as something genuinely special and metaphysically deep, as the Queen of structuring relations. Pretty much everyone has taken it to be an undefinable primitive. (As far as I am aware, chapter 6 of *Making Things Up* is the first attempt to analyze relative fundamentality at all.) On my view, relative fundamentality is just relative location in a certain sort of relational structure, not different in kind from causal priority.

I admit that the point I am making could in principle be addressed by simply proposing a new, additional, umbrella term or concept – 'determinative priority', perhaps. I also admit that doing so, and keeping the label 'relative fundamentality' for something characterized in terms of the building relations other than causation, would be less revisionary. But that doesn't have the same kind of rhetorical force or true cognitive oomph as advocating for the kind of horizontal assimilation that the radicals in my little story advocate for. I advocate using the term 'relative fundamentality' in a way that includes causal priority as a way to truly emphasize that there is *nothing special* about relative fundamentality talk, just as the activists want to emphasize that there is not, or should not be, anything special about being a husband as opposed to a wife. So *that* is why I opt for the revisionary story. The available concepts – relative fundamentality and causal priority – wrong-grain things; the better way to go is to

advocate for amelioration of the relative fundamentality concept. This amelioration does not involve a subject change; the resulting broader notion respects quite a lot of ordinary thinking about relative fundamentality. It is certainly not arbitrary linguistic stipulation.

To wrap up this section: while the account that results from taking causation out of my picture – as I suggest on p. 169, and which Schaffer seems to like (2019) – respects *more* of our ordinary intuitions about relative fundamentality than my account, it does not respect all of them either. That is basically the topic of §6.7.4. There, I discuss various ways in which my account departs from ordinary usage. And they are all other ways, ways that have nothing to do with the inclusion of causal priority. So, though I did not say this in the book, that section is effectively about how the account that analyzes relative fundamentality in terms of the class of building relations other than causation is not a perfect piece of conceptual analysis either. That is, the theory I offer in the book is revisionary even *if* I were to make the concessionary move.

### 3. Modal recombination

Jennifer Wang points out that I rely on modal recombination arguments in various places in the book, and continues her 2016 claim that doing so is problematic. The general claim that Wang denies is this: the contingent fundamental entities are freely modally recombinable in the sense that none of them necessitates any of the others. I will start by discussing the particular challenges she raises to my arguments, and then say a little about the general question of whether this principle is true.

There are three places where I rely – better, *appear* to rely – on something like the modal recombination principle: in my second argument against indeterministic building (2017, 50), in my first argument against extreme primitivism about relative fundamentality (2017, 140–141), and in my second argument against taking the building facts to be primitive (2017, 190–192). The first thing to note is something made clear from that list: in none of these cases do I *solely* rely on a modal recombination principle. And Wang does helpfully point out other ways in which I could argue for some of these claims. Still, though, let me say a bit about each.

On the second argument against indeterministic building: Wang is right<sup>18</sup> that the argument relies on something like the converse of the

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<sup>18</sup>She is also right that I should not have said, and did not mean, that if *nothing* constrains *b*, *b* is fundamental. I did indeed mean that if nothing (contingent and) fundamental constrains *b*, *b* is fundamental.

modal recombability principle: if no contingent fundamental entities necessitate or are necessitated by  $x$ ,  $x$  is fundamental. And she is also right, I have come to see, that no true building indeterminist would be convinced by the argument. It is question-begging. I basically argued that if an entity fails to supervene on the rest of reality, it is fundamental and thus unbuilt. But why would a building indeterminist agree to that? The building indeterminist precisely thinks that built entities can fail to be necessitated by anything. So I admit that this argument is not convincing. I do still have the argument from luck (2017, 50), though its status is unclear in light of my discussion in Section 1.2 of this reply.

What about the other two places where I appear to rely on modal recombination? Even assuming for the sake of argument that the general recombability principle is false – more on that in a moment – I contend that neither is problematic.

My argument against extreme primitivism about relative fundamentality does not actually rest on any general recombination principle, as Wang in effect acknowledges (2019). The reason is simple. Extreme primitivism is *by definition* the view that

relative fundamentality has nothing to do with building. There is nothing in virtue of which the relative fundamentality facts obtain, and the relative fundamentality facts are entirely unconstrained by the building facts. They just have nothing to do with each other. (2017, 140)

The ‘nothing in virtue of which they obtain’ part is the primitivism part; the ‘entirely unconstrained’ part is the extreme part. That is, what’s distinctive about the extreme view is precisely recombability. It’s explicitly baked into the view. Compare: if someone explicitly states that there is no connection of any kind between the price of tea and the price of lemonade, then I can say that on that view, for any  $x$  and  $y$  that are possible prices, tea could cost  $x$  and lemonade  $y$ . That does not rely on any general recombination principle; it’s pretty much just a restatement of the view. Indeed, that is why I do not put much weight on this argument against extreme primitivism – I go on to offer three other arguments against it – and instead admit that it is ‘more bald statement than argument’ (141). The reason I said that is that a committed extreme primitivist will not take the recombination point as a problem; it’s just the view.

In contrast, my argument against taking the building facts to be primitive does rely on a general recombination principle. It went as follows (2017, 190). Suppose the building facts – facts like the fact that  $a$  builds  $b$  – are fundamental. Since they are contingent, the recombability

principle entails that no other contingent fundamental entity necessitates them or is necessitated by them. So there is a possible world in which all the other actual contingent fundamental entities are exactly as they actually are – all the subatomic particles are in the same arrangements, and so forth – but nothing builds anything else. And then I go into the dilemma that Wang describes: I suggest that either the actually built entities exist unbuilt in that world, or they do not exist at all. The former is implausible for reasons I discuss; the latter contradicts building determinism.

Things get a little confusing here, because this argument involves modal recombination not once but twice. The ‘outer’, or primary, one is the one explicit in the previous paragraph, invoked to postulate the world with no building facts but all other fundamentalia the same. But there is an implicit one: ruling out the second horn of the dilemma requires arguing for building determinism, and one of my two arguments for *that* is also a modal recombination argument. Call that the ‘inner’ or secondary appeal to modal recombination.

Wang focuses on the secondary one. It is, after all, the argument that I have just conceded is question-begging. Now, in response, I could point out that I do have a second argument for building determinism, namely the argument from luck that I discuss in Section 1.2. But the fact is that in Section 1.2, I opened the door to indeterministic building significantly wider than it was in the book. This puts the second horn of the dilemma on somewhat shaky ground, leaving me without a solid argument for the claim that the building facts are built. (It is to be noted, however, that it is an interesting result that denying that the building facts are built entails accepting building indeterminism.) But in this section, my question is not whether there is *some* reason the argument falters; my question is only whether the argument falters because of its reliance on modal recombination. Even more precisely, what I want to take up is something Wang does not address, namely whether the argument falters because of its *primary* use of modal recombination – that is, the use of the principle to postulate the possible world with no building facts, but otherwise just like the actual world in all fundamental matters.

I think the answer to that is no; its reliance on modal recombination is unproblematic. The reason is that it is hard to see what, relevant to the argument, could be claimed to modally constrain the building facts. Imagine an interlocutor who denies the recombination principle, and who is inclined to think that the building facts are fundamental. What might she think either necessitates the building facts, or is necessitated



by them? Surely one of two things.<sup>19</sup> First, she might think building facts are necessitated by the input builders: she might think the fact that *a* builds *b* is necessitated – but not built – by *a*. But if that's her view, I pretty much win; it is quite close to the upwards anti-primitivism that I defend. (Though I do think the building version of upwards anti-primitivism is to be preferred to this modal version.) Second, she might think that building facts are necessitated (but not built) by the *output*, built entity: *b*, or perhaps the fact that it exists, necessitates the fact that *a* builds *b*. The thought here is that one cannot, as it were, 'delete' the actual building facts without also deleting the entities that actually stand in the output side of the fact. If *a* actually builds *b*, it is not possible that *b* exist without the fact that *a* builds *b*. Now, let me hasten to point out that this is not a particularly plausible principle. It in effect says that built entities always depend for their existence on whatever actually builds them: you can't have *b* unless it is built by *a*. But many built entities do not ontologically depend on their actual, current builders in this way. (Think of things changing parts over time, for example.) Still, let's suppose my imaginary interlocutor thinks this. Then the fact that *a* builds *b* is not freely recombinable with *b*: any world without the building fact is a world without *b*. But that's fine: consideration of that possibility is already baked into the argument. In the dilemma part of the argument, I consider the thought that the actually built entities like *b* do not exist in the world without the actual building facts. I conclude that the arguments' reliance on the modal recombination principle is unproblematic. I see nothing relevant to the argument that plausibly modally constrains the building facts.

Let's set aside the details of my arguments from the book, and directly address the question of whether the general recombinability principle is true. Should we think that the contingent fundamental entities are freely modally recombinable? When I started thinking about my reply, I intended to defend that claim, but I have come to agree with Wang that the connections between fundamentality and modality are somewhat vexed.<sup>20</sup>

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<sup>19</sup>A third possibility is that she is what I call a 'sophisticated primitivist' about the relative fundamentality facts (2017, §6.2.2): she thinks that the relative fundamentality facts are fundamental, but nonetheless modally constrain the building facts. But since the p. 190 argument makes no appeal to relative fundamentality, this possible position is irrelevant.

<sup>20</sup>Though I note in passing that her example of quantum entanglement is not convincing. It at most shows that there are fundamental states that are tied together with *nomisic* necessity, not metaphysical necessity.

Let me begin by noting that she is probably (see note 6) right that if there are fundamental entities of different ontological categories, there can be cross-category necessitation amongst the fundamentals. For example, many people think properties cannot exist uninstantiated. But that is to endorse a modal constraint: for all  $P$ , it is necessary that if  $P$  exists, there exists some entity that instantiates it. But it does not seem as though endorsing such a principle should force one to deny that there are any fundamental properties. Instead, it seems a perfectly reasonable position to think that some properties are fundamental even though they cannot exist without an instantiator. Similarly, it is presumably impossible for an object to exist without any properties. But that alone surely does not show that there are no contingent fundamental objects. (Wang makes these points in her 2016.)

I am not entirely sure what to make of these claims.<sup>21</sup> But for the sake of argument, I will concede the point, and assume that the only live option for a modal recombinability principle is one restricted to entities of a single ontological category: perhaps the contingent fundamental properties are recombinable, or the contingent fundamental facts, or the contingent fundamental objects.

I find it useful to state the restricted modal recombinability principle in a different way: there are no necessary connections between contingent fundamental entities of ontological category  $C$ . (For simplicity, I will henceforth leave the restriction to a category implicit.) Put that way, it has an unmistakably Humean flavor. Should we believe it? Why?

It is tempting but wrongheaded to think that a principle like that follows from the nature of fundamentality. Here's why. Fundamentality, as I argue in chapter 5, is independence or unbuiltness. And it does not follow from the fact that something is unbuilt that it is modally unconstrained. Such an argument would have to go like this. (1) By definition, all contingent fundamental things are unbuilt; (2) all contingent unbuilt things are unnecessitated; (3) *a fortiori* all contingent unbuilt things are unnecessitated by other fundamental things. Voilà.

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<sup>21</sup>If a property  $P$  needs to be instantiated in order to exist, does it not exist partly in virtue of being instantiated? And if that is the case, it no longer sounds truly fundamental. Matters are complicated here by the three different senses in which a property or relations can be said to be fundamental (see 187–188, and Wang's xxx).  $P$  can be fundamental in the sense that only fundamental things can instantiate it, and it can perhaps be fundamental in the sense that there is never anything in virtue of which it is instantiated. But if it must be instantiated in order to exist, it is natural to say that it exists in virtue of its instances. (This point actually echoes Wang's remarks in §5 about the 'different lenses' through which we can see the claim that building relations are fundamental.) Similarly, there is a case to be made that objects exist partly in virtue of their instantiating properties.

The problem, of course, is that (2) is false. It is simply not true that all unbuilt things are unnecessitated. As Wang points out, a fundamental thing can be necessitated by a nonfundamental thing that depends upon it for its existence. Suppose that fundamental entity *a* builds *b*, and further suppose – and yes, this is an extra supposition; see above – that *b* depends on *a*, in the sense that *a* is required for *b* to exist (nothing else can build it). Then *b* necessitates *a*, even though *a* is fundamental. So it is not the case that all unbuilt things are unnecessitated.<sup>22</sup>

Now, let's be clear about the dialectic. That kind of example of a necessitated unbuilt thing simply undermines one (bad) reason for believing that there are no necessitation relations among contingent fundamental entities. It does not show that it is *false* that there are no necessitation relations among contingent fundamental entities. That is, it does not show that there *can* be such necessitation relations. That's because the example crucially involves nonfundamental things, in the service of falsifying (2). We are back where we started.

Here is what I take to be a better argument against necessitation relations among contingent fundamentals within the same ontological category, deriving from remarks I make on p. 190. This is not a decisive argument, but more of a burden-of-proof point. The central idea is that necessitation relations are constraints on how a thing can be, and unexplained constraints are in general bad. So when a modal constraint is in place, we look for an explanation. Two kinds of explanation of such constraints are frequently available, but one of them is never applicable in the case at hand.

One kind of explanation of a modal constraint invokes building – the fact that *a* necessitates *b* is explained by the fact that *a* builds *b*. This is the one that is never applicable in a case involving a modal constraint on fundamental entities – fundamental things are not built, not on my understanding of 'fundamental'. Another way of explaining modal constraints appeals to relational essences: in some cases, part of what it is to be a certain kind of thing is to bear some relation to a different kind of thing. This kind of explanation arguably *is* available for modal constraints on fundamental things. In particular, it seems to be what is in play in the cases of cross-categorical necessitation discussed above: part of what it is to be an object is to instantiate properties, and part of what

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<sup>22</sup>Another kind of example of necessitated unbuilt things is irrelevant in this context: namely, those involving necessary truths. The fact that  $2 + 2 = 4$  necessitates any fundamental fact you like. However, this is irrelevant because what is needed is an example of something contingent necessitating something unbuilt.

it is to be a property is to be instantiated by things. Perhaps other forms of explanation are sometimes available. The point is that some such explanation must be provided; necessitation relations amongst the fundamentals are guilty until proven innocent.

And this is, in my view, really the role of modal recombination arguments. They put an explanatory challenge on the table: if you think *a* and *b* are both fundamental, and yet *not* freely recombinable, you owe us a story about why not, about what binds them together. And since they are both fundamental, that story cannot involve building. If no such story is forthcoming, that is a significant strike against the view. These thoughts will reemerge in Section 5, on generativity. They are also in the spirit of the end of Wang's §4, as well as very much in the spirit of various arguments I made in the book. In particular, it is exactly how I argue against sophisticated primitivism about relative fundamentality: that view endorses all kinds of ways in which the building facts constrain the relative fundamentality facts, and yet denies that the latter are, or are built by, the former. Mysterious constraints indeed! It is true that Wang denies that 'primitive modal constraints on [the fundamentals] must be arbitrary or mysterious' (2019), but the disagreement here is smaller than it may look. What I am now allowing is that modal constraints on the fundamentals need not be primitive: perhaps, in some cases, they can be explained. But when they cannot be, they are arbitrary and mysterious indeed.

#### 4. Building the building facts

I have just discussed the fact that Wang rejects my argument for the claim that the building facts are built. Audi takes on not the argument but my positive view about just *how* they are built (2011a, 2017, chapter 7). (Others have raised challenges to the view as well. For more discussion of these issues, see Dasgupta 2019; Thompson 2019, and my replies to them in 2019b and 2019c.) Audi argues against the very notion of a one-sided relation, and also argues that even if one-sidedness can be made sense of, building relations are not always one-sided. He also articulates a desire for a certain kind of constraint on a theory of what grounds the grounding facts – a constraint that he admits is perhaps odd. I will discuss these in turn.

His argument against the coherence of one-sided relations goes like this. Suppose *a* stands in building relation *R* to *b*, and that building relations are one-sided in my sense. If internal relations are supposed to 'imply no addition of being to their relata' (2019), presumably one-sided

relations should not either. But aren't we supposed to think that built entity *b* is real, indeed just as real as its builder *a*? So *b* is an addition to being after all, contrary to the supposition that *R* is one-sided.

There are a couple of problems here. One is Audi's assumption that the one-sidedness of *R* entails that *b* is no addition to being. When people like Armstrong say that internal relations like *taller than* are in some sense no addition to being, they mean that the *relation* is no addition to being, not the relata. It doesn't follow from Jake's being taller than Charlie, and *taller than* being internal, that *Charlie* is no addition to being beyond Jake! Similarly, all that would follow from the one-sidedness of building is that in some sense building relations are no addition to being, not that *b* is. Now, that said, I myself of course do think there indeed is a sense in which *b* is 'no addition to being', but this follows not from the one-sidedness of building, but from my commitment to the Laser. The Laser, which I defend in chapter 8, is the view (shared by Jonathan Schaffer [2015]) that nonfundamental entities do not contribute to the complexity of a theory in a way that makes it less likely to be true. So I am committed to the claim Audi thinks is problematic, but for a different reason. (Audi also does not like the Laser. Unfortunately, time and space constraints prevent me from addressing his interesting concerns in detail. I can only offer a few quick remarks in this footnote.<sup>23</sup>)

So is there a problem with *b*'s being in some sense 'no addition to being' beyond its complete building base *a*? Well, it depends upon what that phrase means. If it literally means that *b* does not exist, then yes, that claim conflicts with the assumption that 'derived things are real', which is what bothers Audi (2019). And if the phrase means that *b* is numerically identical to *a*, then it conflicts with the assumption that *b* derives from *a* in a way that *a* does not derive from *b*. But I do not think either of those are the best way to understand 'no addition to being' or the related talk of 'nothing over and above'. As I argue in the book (221–222), I think the best way to understand the claim that built entities are 'no addition to being' or 'nothing over and above their builders' is as expressing, well, the Laser: they do not count against the simplicity of a

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<sup>23</sup>First and foremost, I do now share the sense that there is something slippery about my probabilistic argument. Second, however, I think some of Audi's concerns are somewhat assuaged by the fact that both Ockham's Razor and the Laser involve subjective probabilities. That's because, assuming a realistic picture of the world, all scientific theories have an *objective* probability of either 1 or 0. Take as a toy example a theory that says that there are *x*-particles, and spells out how *x*-particles behave. Well, either this theory is true, or it is false. Talk of how likely it is to be true is quite different from talk of how likely a certain indeterministic process is to happen – how likely a particle is to decay, for example. The latter might involve objective probabilities, but the former must be about subjective probabilities – it is about how confident we are that we are right in believing or not believing the theory.

theory in a way that makes the theory less likely to be true. The built entities are perfectly real – i.e. they exist in exactly the same sense as the more fundamental things that build them – and they are not identical to what builds them. They even do ‘count ontologically’ in the sense that a tally of how many things there are must include them (*contra* Lewis 1991, 81, this is not double-counting. See my 2017, 222, note 7). So I do not see a problem here.

Next, Audi claims that even if we assume sense can be made of one-sidedness, building relations are not always one-sided. I am not sure I fully understand this argument, because I am not sure why the claim that building relations are one-sided should mean that ‘the intrinsic flavor of the grounded’ be found ‘inside the ground’. Take a two gram object, composed of two one gram parts. Neither part alone contains the intrinsic flavor of having mass two grams. Taken together they do, but to consider them taken together is perilously close to considering the composite.

Whatever exactly is bothering Audi here, I take it to be connected to his thought that somehow or other the nature of *both* the ground and the grounded should figure into an explanation of why grounding obtains between them. Schematically, his constraint is this: an adequate account of what grounds the fact that  $F$  grounds  $G$  needs to somehow invoke both the nature of  $F_{\text{ness}}$  and the nature of  $G_{\text{ness}}$ . I share the concerns he himself raises about this constraint (2019). Indeed, I say quite similar things against the Finean view that I call ‘downwards anti-primitivism’ – a view that says that the fact that  $F$  grounds  $G$  is grounded in the nature of  $G_{\text{ness}}$  (2017, 199 and 206). (Audi’s tentative view could be called up-and-down anti-primitivism, or maybe egalitarian anti-primitivism?) So I am not on board with it. Still, Audi ‘hold[s] out hope for a solution that accords the grounded thing some role in the explanation’ of the fact that it is grounded as it is. In an exploratory spirit, I offer three different directions for developing the view.

The first is to note that Audi’s tentative view has some similarities with Armstrong’s account of laws of nature. Armstrong thinks that laws of nature are necessitation relations between universals. In virtue of what do these relations obtain? He is not completely clear on this point, but one of the things he says – including in the main presentation of his view in *What is a Law of Nature?* (1983) – is that ‘the basis in reality, the truth-maker, the ontological ground’ of nomic necessitation is the natures of *both* universals involved. That is, if nomic necessitation obtains between  $F_{\text{ness}}$  and  $G_{\text{ness}}$ , that relation obtains in virtue of

'*what it is to be an F and what it is to be a G*' (1983, 77, italics in original).<sup>24</sup> So maybe drawing some inspiration from Armstrong will prove fruitful to Audi. The main problem I see is that there is an important disanalogy between building and nomic necessitation. In the case of building, whatever occupies the second slot exists or obtains in virtue of whatever occupies the first slot. That is not the case with a standard Armstrong law of the form  $N(F, G)$ . *Particular G* things may exist or obtain in virtue of *particular F* things, given the law, but *G* itself does not exist because *F* does. (Or does it?)

The second possible way to develop Audi's idea is to endorse a view I very briefly gestured at in the book. I called it a 'quasi-Meinongian ontology' (206). On this line, the world contains lots (and lots and lots) of objects, properties, facts (and so on) that do not exist or obtain. They have some other shadowy status – they subsist rather than exist; they subtain rather than obtain. Yet they are in some mysterious sense *there*, and available to enter into grounding relations. So there is an instance of  $F_{\text{ness}}$ , fully existent or obtaining. There is an instance of  $G_{\text{ness}}$ , merely subsisting or subtaining. The existent instance of  $F_{\text{ness}}$  connects up with and grounds the subsistent instance of  $G_{\text{ness}}$ , bringing it into full existence or obtaining. This position has the virtue of preserving the thought that grounding *does something* – that the instance of *F* makes the instance of *G* obtain, that the instance of *G* obtains in virtue of the instance of *F*. But it does so in a way that allows the nature of  $G_{\text{ness}}$  to be available to enter into the grounds of the fact that the instance of *F* grounds the instance of *G*, as Audi wants.

This position is interesting to contemplate, but surely it is hopeless. For one thing, the distinction between subsistence and existence is as cringe-worthy to my ears as it was to Quine's (1948). And it also simply is not coherent. How can there be a time when the instance of  $F_{\text{ness}}$  exists and the instance of  $G_{\text{ness}}$  merely subsists? The picture requires that there be one, which means that something *else* must trigger grounding, which means that the nature of  $F_{\text{ness}}$  and the nature of  $G_{\text{ness}}$  do not exhaust the grounds of the grounding fact [*F* grounds *G*].

The third possible way to develop Audi's tentative view is more promising. The idea is to adopt my distinction (2017, 61–62) between

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<sup>24</sup>The reason I say that Armstrong is not completely clear is that I simply do not understand how the claim in the main text is compatible with a natural understanding of his claim that the laws of nature are contingent. It is compatible with the claim that what universals *exist* is contingent, and so there are worlds where actual laws fail to be laws because some actual universals go missing. But it is not compatible with the claim that the laws could be different in a world with all the same universals as our world, which is what Armstrong seems to have in mind.

explanation in the metaphysical sense and explanation in the epistemic sense. Adopt upwards anti-primitivism about the grounding facts, and claim that the fact that  $F$  grounds  $G$  is grounded in – metaphysically explained by – the existence and nature of  $F$ . But this leaves open that perhaps in some cases knowledge of the nature of  $G$  must factor into an *epistemic* explanation of the fact that  $F$  grounds  $G$ . (See 2017, 202 and my reply (2019b) to Dasgupta (2019) for discussion of orthogonal but somewhat relevant matters.)

## 5. Generativity

One of the features shared by all building relations is what I call *generativity* (G): when a building relation obtains, we are allowed to start using explanatory idioms like ‘because’ and ‘in virtue of’. As Rosen notes, I intentionally formulated (G) in terms of what we are allowed to *say*. I did this in order to render it compatible with a range of views about just *why* we are allowed to start using those idioms:

On one extreme is the claim that whenever a building relation obtains, a special further relation also obtains: a primitive *in virtue of* relation or something along those lines ... on the other extreme is the claim that there is no such further relation: there is nothing but the generative talk. (2017, 58–59; see also 184–185)<sup>25</sup>

Rosen wants nothing to do with this neutrality, instead opting for the first extreme: what I will call a ‘hardcore realist’ interpretation of generativity, formulated in terms of grounding. His (GG) principle states that when one thing builds (or some things build) another, the fact that the first exists (obtains, etc.) partly grounds the fact that the second does. I agree that this proposal is a good implementation of the hardcore realist understanding of generativity, and thank him for it. The question is whether we should adopt it. Let me say a bit in defense of my ecumenical formulation, and then engage with Rosen’s (GG).

There are two reasons that I formulated (G) so neutrally. The first is that I think of my overall project in the book as providing a kind of framework view that can be endorsed by philosophers who disagree with each other about a variety of substantive matters. (I call this ‘content neutrality’ in 2019a). This shows up in many places throughout the book. For example, although I count composition on my list of candidate building

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<sup>25</sup>In 2019b, 512–513, I flesh out the second extreme a bit more than I did in the book. The conventionalist view I was envisaging is an analog of Ted Sider’s conventionalism about modality.



relations – and I myself do think it is one – most of the book is intended to be perfectly amenable to those who deny that the relation ever obtains. Such people would read my claims in terms of other building relations. Another example: my discussion of how to understand fundamentality and relative fundamentality is explicitly intended to be neutral about what in fact *is* fundamental, or more fundamental than what. It is even intended to be neutral about whether anything actually is fundamental. In the case of the generativity requirement, what is crucial is that I want to show that even someone pretty suspicious of the idea that there is a real, objective fundamentality structure to the world can make sense of our fundamentality talk. Because people *do* engage in such talk. Even non-philosophers and undergraduates understand me, and say ‘yes’, when I ask them if they think atoms are more fundamental than chairs and coffee mugs. The availability of a non-realist interpretation of (G) allows people to continue engaging in this talk even if they are not drawn to the kind of realist view that Rosen likes. (On their view, however, such talk does not express anything metaphysically deep, and they might upon reflection choose to abstain from it.) The point is that this neutrality remains valuable even if I, personally, come to be convinced by a more realist story about what justifies the use of explanatory idioms.

And that brings me to the second reason for my neutral formulation of (G), namely that I honestly was not, and am not, sure what to think. And worse: I not only am unsure what to think, but I am profoundly and disturbingly unsure how to *figure out* what to think. I do not know what kinds of argument would be effective in settling the matter, and I certainly do not know what kinds of argument would convince people inclined to one side to cross the aisle and join the other. In the book, I admit that my leanings vary with my mood. What does not vary, though, is the thought that I do not know how to establish the truth (or falsity!) of such a robust realism about generativity – and, as a corollary, about fundamentality and relative fundamentality. Nonetheless, here are a few thoughts. I will first quickly revisit the brief remarks I made in the book, and then put a new consideration on the table.

In the book, I made two quick remarks against the realist interpretation. Rosen responds to both (2019). I read his remarks about the second more as a statement of faith than as an argument, or a genuine response to the p. 59 passage he quotes. As for the first, he is correct that his GG principle does not entail the letter of generalist monism as I characterized it on 22–23; it is not the case that grounding is a most general, most fundamental building relation of which the other building relations are *versions*. Perhaps

the reference to ‘versions’ was unfortunate. Elsewhere I treat the important bit of generalism – for it is generalism that is really at issue here, rather than the monist part – as being the claim that there is a building relation that obtains whenever one of the others does. Rosen’s proposal does entail this, at least *modulo* a small wrinkle,<sup>26</sup> and thus is indeed vulnerable to the concerns I raise in the book about generalist monism, *contra* his suggestion that

Bennett’s detailed objections to the idea that there might be a single general building relation (§2.5) do not apply (so far as I can tell) to the proposal above, since it is not literally a form of what she calls ‘generalist monism’. (2019b)

On his proposal, whenever any building relation obtains, there is an associated instance of grounding, and the two arguments I made against generalist monism do in fact apply.

That said, they should not worry Rosen very much. Those two arguments, in a nutshell, were that a relation that obtained whenever one of the more specific ones do would (a) fail to be extensional, and (b) possibly fail to be asymmetric. But as I note in the book, grounding is already known to not be extensional (and I have retracted that argument anyway (2019b), in response to Ross Cameron [2019]). And as for the second, well, any fan of (GG) will make the response I offered in the book (2017, 28): deny that it is possible for two different building relations to hold in opposite directions between the same relata. Again, I did not intend to show that generalist monism was *false*; I simply did not wish to gamble on it.

So where does that leave us? Still unsettled. One new angle on the problem is offered by Shamik Dasgupta (2019, §2), who suggests that my modal recombination and epistemic arguments against primitivism about relative fundamentality (2017, §6.2.1) can be applied here, against the realist interpretation of generativity. Rosen has the resources to resist these arguments, but reflection on just how that works opens up new questions worthy of further investigation. For simplicity, I will focus on the modal recombination argument. I will start with a version that helps itself to a general recombination principle of the sort Wang criticizes (see my §3), but that ladder will eventually be kicked away. (Dasgupta’s own version is somewhat different.)

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<sup>26</sup>The small wrinkle is that, on Rosen’s proposal, grounding does not obtain between the very same relata as the other building relation does. Suppose the *aas* compose *b*. On his suggestion, the fact that the *aas* exist grounds the fact that *b* exists. Composition obtains between the entities themselves, between the *aas* and *b*; grounding instead obtains between certain associated facts.

The rough idea is that on the realist interpretation, there is a primitive *in virtue of* relation that obtains between existence facts when other building relations obtain between, well, whatever they take as their relata. But if that relation is primitive, perhaps it can go missing. There can be a world just like this world in terms of, say, the existence of the composition relation, and in terms of what explanatory language is licensed when it obtains, and yet in which it is false that the existence of the parts grounds the existence of the whole. (Indeed, one can imagine two otherwise indiscernible worlds, in one of which Schafferian monism is true, and in the other the opposite.) This does not seem very plausible.

But of course, Rosen does not think that such recombination is possible. After all, he thinks that building facts *entail* associated grounding facts:

(GG) For all building relations  $B$ , all  $xx$ , and all  $y$ :  $B(xx; y)$  entails that the fact that the  $xs$  exist (occur, obtain, etc.) partly grounds the fact that  $y$  exists (occurs, obtains, etc.).

For example, suppose that the *aas* compose *b*. On Rosen's view, this entails that the fact that the *aas* exist (and perhaps are arranged as they are; I will henceforth omit this for simplicity) grounds the fact that *b* exists. It is impossible for the *aas* to compose *b* and for it not to be the case that the fact that the *aas* exist grounds the fact that the *bbs* exist. Recombination argument averted.

But at what cost? Here I look back to my earlier remarks about modal recombination in Section 3. The question is, what would explain this modal constraint that Rosen has hypothesized? Letting 'the composition fact' mean [the fact that the *aas* compose *b*], and letting 'the grounding fact' mean [the fact that the *aas* exist grounds the fact that *b* exists], the question is this: why is it impossible for the composition fact to obtain without the grounding fact obtaining? Here are the first three answers that suggest themselves:

- (1) The composition fact *is* the grounding fact
- (2) The composition fact grounds the grounding fact.
- (3) The grounding fact grounds the composition fact.

(1) cannot be right, as composition and grounding have different relata (cf. Rosen 2019). (3) does not look promising either. After all, *every* building relation is tied to grounding by (GG). So very similar seeming grounding facts would have to ground quite different building facts. Perhaps this isn't disastrous; after all, grounding isn't extensional. But still, it is odd

that sometimes [the fact that *a* exists grounds the fact that *b* exists] grounds [the fact that *a* set-forms *b*], and sometimes instead grounds [the fact that *a* property-realizes *b*], and so forth.

So could (2) be right? Could it be that the grounding relation obtains between the relevant facts *because* the composition relation obtains between the *aas* and *b*?

On the one hand, that sounds kind of right. On the other hand, it conflicts with answers that *both* Rosen and I have given to the general question of what grounds the grounding facts. I have argued (2011a, 2017, chapter 7) for a view that I call upwards anti-primitivism: that if *p* grounds *q*, *p* also grounds the fact that *p* grounds *q*. So if the fact that the *aas* exist grounds the fact that *b* exists, what grounds the fact that [the fact that the *aas* exist grounds the fact that *b* exists] ought to be the fact that the *aas* exist. Not the fact that the *aas* compose *b*. And while Rosen does not endorse my view about what grounds the grounding facts (e.g. 2017, 284), his view is also not compatible with the claim that the fact that the *aas* compose *b* grounds the fact that [the fact that the *aas* exist grounds the fact that *b* exists]. He argues that in at least some cases, the grounds of a grounding fact must include a general metaphysical principle or law to the effect that when things like the *aas* exist, the fact that they exist grounds the fact that something like *b* exists (2017). This, again, is positing grounds for the grounding fact distinct from the fact that the *aas* compose *b*. (This is an aside for present purposes, but for the record I have come to agree, and am now inclined to deny that there is a universal answer to the question of what grounds the grounding facts. See my 2019b reply to Dasgupta.) So it would appear that Rosen cannot endorse (2), which means that we are still left with a mystery about why the grounding facts and (other) building facts would be modally constrained in the way that Rosen's (GG) principle says they are.

Here is one more possible explanation. The necessary connection that Rosen posits between grounding facts and (other) building facts could be explained by what it is to be a building relation, or perhaps what it is to be a building fact. This would be the kind of explanation in terms of relational essences that I mentioned back in Section 3: it is part of *what it is* to be a building relation that when it obtains, an associated grounding fact obtains too. It fits well with Rosen's discussion. Perhaps that is the way for the hardcore realist to go. As for me, I'm going to stick with my intentional neutrality.

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