

## Making Things Up, by Karen Bennett

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DOI:

[10.1093/mind/fzy047](https://doi.org/10.1093/mind/fzy047)

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*Document Version*

Peer reviewed version

*Citation for published version (Harvard):*

Wilson, A 2019, 'Making Things Up, by Karen Bennett', *Mind*, vol. 128, no. 510, pp. 588–600.

<https://doi.org/10.1093/mind/fzy047>

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*Making Things Up*, by Karen Bennett. Oxford: Oxford University Press, 2017. Pp. xi + 260.

## 1. Introduction

Recent metaphysics has seen a wave of attention to fundamentality and to various notions of objective dependence. Use of the notion of ground in particular has become widespread, though it continues to sharply divide opinion. This surge of work on fundamentality and dependence has generally been limited to articles in journals and in edited collections (e.g. Correia and Schnieder 2012), with book-length discussions largely absent from the literature (a notable exception is Sider 2011). Karen Bennett's *Making Things Up* now fills this gap, as a systematic treatment of the whole spectrum of objective dependence notions—their unifying features, their distinctive characters, their role in characterizing fundamentality and their own dependence on the fundamental.

Bennett compresses hundreds of interconnected and overlapping lines of thought into 245 densely-argued pages. Here's the primary reason for thinking X; here are two complementary reasons for thinking X; if you're unmoved by any of those, here's a different approach to the question of whether X; here's why the most obvious objection to X does not work; and finally, here's how questions about X could be finessed without compromising the book's overall project. Bennett is an 'unabashed metaphysical realist' (p.4) and, for most X, takes the question of whether X at face value. Readers sceptical of metaphysics will not find here explicit metametaphysical arguments to bring them around, but Bennett provides indirect support for the value of the metaphysical enterprise by showering the reader in rich and inventive discussions. It is harder to maintain scepticism about metaphysics when its pursuit is made consistently interesting.

Bennett has some distinctive and controversial views about how dependence works. She argues that objective dependence relations, which she calls 'building relations', form a unified group that includes causation; that causation is implicated in most of the other building relations; that each of the building relations without exception is irreflexive and non-symmetric, necessitating and generative (see §2 for more on the latter two notions); that relative and absolute fundamentality both reduce to patterns of building; that instances of building depend (only) on the things that do the building; and that non-fundamental things are no less real than fundamental things. We have quite a gamut of claims here, running from the mildly surprising to the radically revisionary, and the arguments provided for these claims likewise vary from the apparently decisive to the speculative. The project is deliberately broad and exploratory. Few readers will agree on every point, and even the author expresses some doubts: 'I am not sure I believe everything I say in this book, though I will hold my tongue about which parts worry me' (p.vii).

I don't believe everything said in the book either, and in this critical notice I'll raise three main worries about the overall picture of dependence that Bennett sets out. First, I'll object to the revisionary categorization of causation as a building relation. Second, I'll identify an explanatory gap in Bennett's preferred account of how building relations are themselves built, and defend an alternative account in a similar spirit that bridges the gap. Third, I'll draw attention to an underlying tension between two conceptions of building relations each of which plays a role in the book: building relations as metametaphysical tools that ought to be neutral between competing metaphysical hypotheses, and building relations as substantive subjects of first-order metaphysical inquiry. I'll suggest a resolution of this tension

that renders the metaphysics of building less of an *a priori* business than most authors, including Bennett, have anticipated. To begin, in §2 I'll offer a quick summary of the book.

## 2. Summary: what builds, how it builds, why it builds, what is built.

'How, quite generally, is the 'big' *built up from* the 'small?'' (p.6). Bennett sets out to say how. She endorses realism about building relations between big and small, the view that building is a genuine aspect of the world, and takes grounding seriously as one amongst several building relations. But she rejects monism about building relations, the view that there is a generic building relation of which grounding, composition, and the others are different species.

The endorsement of building realism is not in itself controversial—most metaphysicians think that some things compose other things, for example. What is more controversial is Bennett's inclusion of grounding amongst the building relations. Grounding sceptics including Jessica Wilson (2014), Thomas Hofweber (2011) and Chris Daly (2012) have argued in different ways that we do not need any notion of grounding to supplement more familiar notions like composition, set membership, functional realization, and so on; Bennett takes it for granted that we do.

The rejection of building monism, though, sets Bennett against the more ambitious grounding enthusiasts who see grounding as capable of doing important unificatory work: accounting for relations like realization, truthmaking and ontological dependence using a single primitive notion. Against these 'groundhogs' (to use Kit Fine's term) Bennett opts to 'claim without argument that entities other than facts are built... so either grounding takes relata other than facts, or there are building relations other than grounding...' (p.13). She goes on to explore a range of such relations with heterogeneous relata including mereological fusions, ordinary objects, sets, and events.

Instead of endorsing unity by common genus amongst the building relations, Bennett opts for unity by resemblance. She offers three conditions 'individually necessary and jointly sufficient for a relation to count as a building relation' (p.32). Building relations are:

- i. *directed*, in that they are antisymmetric and irreflexive
- ii. *necessitating*, roughly in that builders necessitate what they build
- iii. *generative*, in that builders generate or produce what they build. Built entities exist or obtain because that which builds them does' (p.32)

Bennett defends the antisymmetry and irreflexivity of building relations by rejecting proposed examples that have been proposed in the recent literature by authors including Elizabeth Barnes (2018), Naomi Thompson (2016), and Carrie Jenkins (2011), and by providing a positive argument concerning the relation between building and relative fundamentality. The basic thought behind the positive argument is that one of the primary theoretical roles of building is to provide an account of relative fundamentality, and since *more fundamental than* is antisymmetric and irreflexive, so are building relations. The discussion here is subtle and complex, but it doesn't seem decisive; an exemption might be made for building loops in the characterization of relative fundamentality.

There is now a well-developed literature on whether grounds necessitate that which they ground (see e.g. Leuenberger 2014, Skiles 2015, and references therein). Bennett finesses most of these debates by defending an unusually permissive criterion of necessitation: that any built thing is necessitated by some things distinct from it. This contrasts with the more restrictive criterion (which has been the focus of most previous discussions) that the things which build any built thing should necessitate it. Bennett supports her necessitation requirement primarily by arguing that there should be no luck—no mere coincidences—when it comes to the building facts. Without necessitation, the purportedly built fact ‘just isn’t accounted for or made to exist—it isn’t built at all.’ (p.50). Transposed into the context of causation (p.80-81), this becomes an argument against the conceptual coherence of indeterministic causation: without necessitation by prior events and laws, nothing ‘tips the scales’ (p.80) to settle that the effect occurs, and in such a case Bennett argues that we do not have a case of causation at all.

The general line of thought behind Bennett’s necessitation requirement seems to be tied up with the third feature characteristic of building relations, that they are generative: if *a* really does generate *b*, then (so goes the line of thought) *a* can’t leave any open possibility of *b*’s not obtaining. The discussion of generativity I found one of the more opaque sections of the book, and Bennett’s official statement of the criterion is posed—in contrast to the other conditions for being a building relation—in terms of what we are permitted to say: ‘Building licenses generative locutions like “in virtue of”.’ (p.58). The discussion here is brief, and the notions of generation, production, and explanation aren’t explicated further; it is even left open that generativity might be a conventional matter. Overall, the connections between building and theories of explanation play almost no role in the book, except when used to fend off objections; this feels like a missed opportunity.

Having characterized building in general terms, Bennett turns to the specific case of causation. One of her most surprising claims is that causation is a kind of building relation, and that causes are in a literal sense more fundamental than their effects. I will challenge this claim in §3. Bennett motivates it not by its intuitive plausibility, which is in short supply, but by theoretical considerations: it meets the criteria for being a building relation which Bennett defends on general grounds. A more initially plausible claim about causation, which also plays a major role in the discussion, is that building relations other than causation are ‘causally tainted’ – in that causal facts play a key role in the holding of other dependencies: ‘Pretty much all the kinds of building... often hold in a temporally extended fashion, in virtue of the causal activity of the builders’ (p.99). I think this point is exactly right, and usually under-appreciated in the metaphysics of dependence.

Having set out her preferred account of building relations, Bennett puts it to work. The application of building developed in detail in chapters 5 and 6, which provides the most attractive selling-point for the overall account, is an elegant systematic treatment of fundamentality in terms of building. The general idea is that there is nothing more to fundamentality, in either its absolute or relative forms, than patterns of building. Roughly, to be absolutely fundamental is to not be built by anything, and to be more fundamental than something is to stand upstream of it in a network of building relations. Bennett devotes 85 pages, including some of the most interesting arguments of the book, to making these characterizations less rough; the fully elaborated account of relative fundamentality in terms of building, *MFT* (p.161) is fivefold disjunctive and indexed to particular building relations. Despite this complexity, I found the account natural and compelling. Future work on the nature of fundamentality will need to pay close attention to it.

The book is rounded out with two related chapters on questions raised by the building framework, concerning the source of the building facts and concerning the status of the built. First, given the generality of Bennett's approach it is straightforward to pose the question of how instances of building are themselves built, and in accordance with Bennett's general metaphysical realism this question is taken seriously and answered head-on. Things that build other things also build their own buildings of those other things, and nothing else builds those buildings. I would accept the first of these conjuncts, but reject the second; see §4 for the details. Second, there is a presumption in various strands of recent metaphysics that the fundamental level has a special status with respect to degree of reality. Bennett surveys some of the reasons for thinking that built reality is less real than unbuilt reality, and finds them wanting. This part of the book is in effect a manifesto, and a salutary one: there is important metaphysical work to be done in the non-fundamental domain, and we ought not to denigrate the status of such work.

### 3. Causation as a building relation

Bennett writes of two kinds of causal taint in the domain of building; causation itself is held to be a building relation, and other building relations involve certain causal facts. These kinds of taint strike me as entirely independent. I have no quarrel with the second kind of causal taint, but in this section I shall take issue with the first kind. Given the way Bennett characterizes building relations, I think there are principled reasons for denying that causation is a form of building. Moreover, this denial has some clear advantages with respect to the connection between building and fundamentality. Bennett has to engage in some rather unconvincing contortions to avoid the immediate objection that causes are not automatically more fundamental than their effects: the response is effectively that once we recognize that causation is a building relation we will broaden our conception of fundamentality accordingly, so that the counter-intuitive consequence no longer seems counter-intuitive. I remained unconvinced by this response. Of course, denying that causation is a building relation would immediately render the objection moot.

Why does Bennett think that causation is a building relation? By following general principles concerning building where they lead. Grounding, a canonical building relation, has a strong structural resemblance to causation, as Jonathan Schaffer and I have recently argued (Schaffer 2016; Wilson 2018). Bennett's characterization of building relations is purely structural, and she argues that deterministic causation meets the relevant structural criteria. Since indeterministic causation does not meet the criteria, so much the worse for indeterministic causation.

From a philosophy-of-science standpoint, this rejection of indeterministic causation—not as merely non-actual, but as impossible—is hard to accept. No considerations of taxonomy of metaphysical dependence relations, no matter how forceful within their own domain, will bear much weight if set against the widespread and successful use of the notion of probabilistic causation within disciplines such as epidemiology. Moreover, it isn't clear that this is a fight Bennett needs to pick. As far as I can tell, nothing crucial would be lost by broadening her picture to include the possibility of cases of building where nothing necessitates the built entity: indeterministically-caused events might then be partially built by their causes but not fully built by anything. This is effectively the approach taken by Schaffer (2016), who treats the possibility of indeterministic causation as one of the few clear differences between causation and grounding.

Even if we drop the necessitation constraint, there is a further reason to think that causation does not fit the mould of a building relation: the case for its directedness is much weaker than the case for the directedness of canonical building relations such as grounding and composition. There are reasonably well-behaved models of spacetimes which consistently incorporate circular causation in the form of closed timelike curves. Retrocausal approaches to quantum theory are taken seriously by physicists and by philosophers of physics. Consistent time travel narratives are thought by many metaphysicians, following David Lewis, to be metaphysically possible. Bennett is ready to rule out such scenarios in exchange for greater theoretical unity in (meta)metaphysics.

Denying that causation is a building relation need not leave the relation between causation and building mysterious. We may distinguish between causal connections, mediated by laws of nature, and building relations, mediated by principles such as those of set theory, mereology and property realization, and lean on the metaphysical differences between laws of nature and metaphysical principles to distinguish causation from building (see Wilson forthcoming for a detailed proposal along these lines.) Taking this route would leave intact the account of fundamentality that is the main achievement of *Making Things Up*.

#### 4. Building building

Not long ago, Bennett (2011) kick-started a debate about what (if anything) dependence facts themselves depend on. She proposed a general answer: facts of the form *a builds b* are themselves built—and by *a* itself. This proposal has attracted both support and criticism, and rival answers have been proposed. The debate itself has also come in for criticism; in some quarters, it is seen as exemplifying the absurdities that result from taking the metaphysics of dependence too seriously.

I'm inclined to follow Bennett in taking the building-building question seriously. Where we can explain why something obtains, we have *prima facie* reason to think that that thing is built. Bennett's answer to the question is also very plausible: it does seem that we can explain, at least in part, why facts like *[[A] builds [B]]* obtain—in particular, by identifying explanatorily relevant necessary conditions on their obtaining. Since building is factive, that *[A]* itself obtains is fairly obviously such a condition; I'll argue below that it is not the only such condition.

Discussions in this area have most commonly been cast in terms of grounding rather than in terms of the potentially more general notion of building, and Bennett follows suit. Likewise I shall restrict myself in this section to considering grounding, understood for simplicity as a relation between facts (represented in ugly but hopefully unambiguous fashion using square brackets). These simplifications are harmless enough: for Bennett, instances of each different building relations are built in the same general way, and with a little care the various approaches that I shall discuss can be generalized to other building relations and to treatments of ground as an operator rather than a relation (see e.g. Fine 2012).

There are three main competing views of how facts of the form *[[A] grounds [B]]* are themselves grounded. Bennett calls her view 'upwards anti-primitivism', and contrasts it both with primitivism and with some alternative forms of anti-primitivism.

*Primitivism:*

Nothing grounds *[[A] grounds [B]]* (Jones MS).

|                                    |                                                                                                                |
|------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <i>Upwards anti-primitivism:</i>   | [A] grounds [[A] grounds [B]] n(Bennett 2011).                                                                 |
| <i>Downwards anti-primitivism:</i> | [B] grounds [[A] grounds [B]] (Fine 2012).                                                                     |
| <i>Dasguptan anti-primitivism:</i> | [A] and [it is essential to facts like [B] that if A then B] jointly ground [[A] grounds [B]] (Dasgupta 2014). |

Anti-primitivism has some immediate plausibility. [A] is clearly a necessary condition on [[A] grounds [B]]. [A] also seems to be counterfactually connected to [[A] grounds [B]]: were it not for [A] being the case, it would not be the case that [A] grounds [B]. Citing [A] accordingly seems to go at least some way towards explaining why [A] grounds [B]. Beyond this immediate plausibility, Bennett supports anti-primitivism by arguing that primitivists must admit unacceptable possible configurations of reality, and by defending anti-primitivism from regress objections. I won't address those arguments here, instead focusing on the debate between different anti-primitivists.

Why do anti-primitivists such as Kit Fine (2012) and Shamik Dasgupta (2014) reject upwards anti-primitivism? Fine isn't explicit about his reasons, but Dasgupta has argued that upwards anti-primitivism is explanatorily inadequate. First, Dasgupta argues directly that [A] by itself does not fully explain [[A] grounds [B]] because [A] 'makes no mention of' [B]. Second, he argues that according to upwards anti-primitivism 'facts that should get different explanations get the same explanation': both [[P] grounds [¬~P]] and [[P] grounds [P∨Q]] end up grounded just in P. The general thought is that grounds explain the grounded, and that a general connection between facts like [A] and facts like [B] is needed to fully explain why a grounding connection holds between [A] and [B]. Upwards anti-primitivism, which focuses only on [A] itself and not on the connection between [A] and [B], cannot explain the B-involving aspect of [[A] grounds [B]]. Dasgupta calls views which include a connection between [A] and [B] amongst the grounds of [[A] grounds [B]] *connectivist* views, and he defends a specific essentialist version of connectivism.

Bennett replies to Dasgupta's argument by distinguishing between metaphysical and epistemic forms of explanation, and arguing that Dasgupta is requiring an epistemic explanation where there is only a metaphysical explanation to be had. I found this reply unconvincing; Dasgupta's objection seems to be as well-taken at the metaphysical level as it is at the epistemic level. Even if [A] necessitates [[A] grounds [B]], for familiar reasons that modal connection doesn't establish that [A] is a full metaphysical explanation of [[A] grounds [B]]. The full metaphysical explanation of how [[A] grounds [B]] gets to obtain ought, as Dasgupta suggests, to involve the general connection between kinds of fact that subsumes the specific connection between [A] and [B]; the general connection is helping to generate [[A] grounds [B]].

So, I think that there is something importantly right in Dasgupta's critique. However, granting this does not take us all the way to Dasguptan non-primitivism. All it does is take us to the general thesis of connectivism, which can be developed in various ways compatibly with anti-primitivism:

|                                       |                                                                                          |
|---------------------------------------|------------------------------------------------------------------------------------------|
| <i>Connectivist anti-primitivism:</i> | [A] and [the general principle connecting [A] and [B]] jointly ground [[A] grounds [B]]. |
|---------------------------------------|------------------------------------------------------------------------------------------|

Connectivist anti-primitivism agrees with upwards anti-primitivism that [A] is a partial ground of [[A] grounds [B]], but it adds that [[A] grounds [B]] is also partially grounded in a general principle linking facts like [A] with facts like [B]. The nature of this general principle will differ from case to case; in the disjunction/negation case discussed by Dasgupta the principles will be those governing the behaviour of



the logical operators, while in the familiar case of the singleton set of Socrates the principles will be those of impure set theory.

Connectivist anti-primitivism appears to be well-motivated. Why is it that the existence of Socrates grounds the existence of Singleton Socrates? Intuitively: partly because of a principle of impure set theory. Why is that the correct answer to our question? Intuitively: partly because of whatever higher-order principle connects principles of impure set theory and the existence of set elements on the one hand with the existence of sets on the other.

As with Bennett's preferred version of upwards anti-primitivism, connectivist anti-primitivists have no reason to worry about any potential regress. The view does give rise to a 'bottom-up' hierarchy of facts of the following form:

...

[[A], [P<sup>0</sup>], [P<sup>1</sup>], [P<sup>2</sup>] ground [[A], [P<sup>0</sup>], [P<sup>1</sup>] ground [[A], [P<sup>0</sup>] ground [[A] grounds[B]]]]

[[A], [P<sup>0</sup>], [P<sup>1</sup>] ground [[A], [P<sup>0</sup>] ground [[A] grounds[B]]]]

[[A], [P<sup>0</sup>] ground [[A] grounds[B]]]

[[A] grounds [B]]

Or, put another way:

...

F4: [[A], [P<sup>0</sup>], [P<sup>1</sup>], [P<sup>2</sup>] ground F3]

F3: [[A], [P<sup>0</sup>], [P<sup>1</sup>] ground F2]

F2: [[A], [P<sup>0</sup>] ground F1]

F1: [[A] grounds [B]]

While the questions about grounding ground ramify endlessly upwards, each question has an unproblematic answer. Bennett draws an analogy between upwards anti-primitivism (p. 198) and the truth regress – *p*, '*p* is true', '*p* is true' is true... – which is usually treated as harmless. The regress involved in connectivist anti-primitivism is different in structure, but is likewise non-paradoxical; no fact grounds itself, and for each fact in the regress we can identify a downwards chain of grounding that terminates in facts like [A] and in general grounding principles.

Connectivist anti-primitivists owe us an account of the principles P<sup>0</sup>, P<sup>1</sup>, P<sup>2</sup>, etc. A plausible conjecture is that for  $n > 0$ ,  $P^n = P^{n+1}$ : the principle linking any collection of grounding principles and ground facts to facts about what grounds what is the same, no matter where in the hierarchy of grounding ground we are. A further conjecture is that this ubiquitous linking principle is *grounding principles and ground facts jointly necessitate the grounding fact*—a principle which is closely related to the thesis of connectivist anti-primitivism itself. I can't defend these conjectures here, but I don't need to for present purposes: connectivist anti-primitivism requires only that some general principles or other mediate grounding connections. I think that this requirement is very plausible, and I've argued for it elsewhere (Wilson forthcoming).

Assuming the truth of the first but not of the second conjecture, we may put the resulting account in diagram form, with solid-headed arrows representing grounding relations and circles around networks of arrows representing further facts about what grounds what:

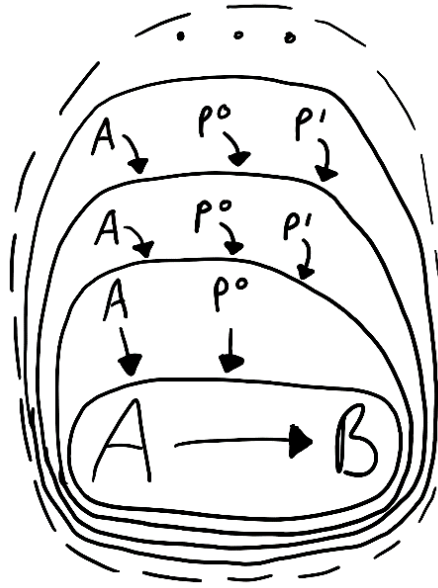


Figure 1: The hierarchy of grounding facts.

Bennett considers the general thesis of connectivist anti-primitivism during her response to Dasgupta. The primary objection she raises to it is that it violates the non-symmetry of building. Bennett argues that because generalizations are grounded in their instances, principles of the form ‘if a fact like [A] obtains then a fact like [B] obtains’ are grounded in particular instances of ‘[[fact like A] grounds [fact like B]]’, and therefore that these principles cannot also ground those instances. But the general principles involved are, on standard assumptions, grounded in particular instances of  $[A \rightarrow B]$  rather than in particular instances of ‘[[A] grounds [B]]’. The connectivist anti-primitivist is making claims only about the grounding of ‘[[A] grounds [B]]’. So unless facts of the form ‘[[A] grounds [B]]’ ground facts of the form  $[A \rightarrow B]$ , there is no circularity problem.

Connectivist anti-primitivists can consistently deny that ‘[[A] grounds [B]]’ does ground  $[A \rightarrow B]$ ; they should in contrast maintain that in cases where ‘[[A] grounds [B]]’ obtains, it is partially grounded in  $[A \rightarrow B]$ .  $[A \rightarrow B]$  then plays the role of intermediary in the order of being along one route between [A] and ‘[[A] grounds [B]]’. Implementing this approach in line with my conjectures above gives us the following picture of the order of being in grounding scenarios, with solid-headed arrows representing (full or partial) grounding relations and thin-headed arrows representing material implication:

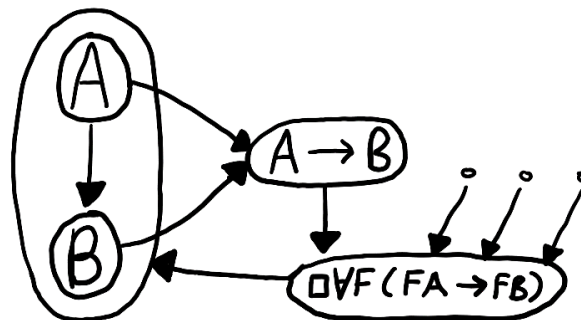


Figure 2: A non-circular implementation of connectivist anti-primitivism.

Bennett will reject the scenario pictured in Figure 2, since it conflicts with her maxim that ‘If  $x$  partly or fully makes it be the case that  $a$  builds  $b$ , then  $x$  partly or fully makes it be the case that  $b$ ’ (p.206). She motivates the maxim by arguing that its denial ‘contradicts the assumption that  $b$  is built by-generated from- $a$ ’, because ‘ $b$  would have to already exist or obtain, ‘before’  $a$  builds it.’ The temporal metaphor is misleading, though; and even if we adopt it, so far as I can see there is nothing to stop the built facts, including the facts about what builds what, all ‘appearing at once’ out of the unbuilt facts. So I think Bennett’s maxim is not as plausible as the guiding connectivist thought that general principles have an important role to play in bringing particular grounding connections into being.

My brief defence of connectivist anti-primitivism has been offered in the spirit of a friendly amendment to Bennett’s overall view. Both upwards anti-primitivism and connectivist anti-primitivism may be contrasted with downwards anti-primitivism in that, to use Bennett’s terminology, the former are bottom-up rather than top-down views. However, connectivist anti-primitivism offers a more fine-grained account of the grounding of particular grounding facts than Bennett’s upwards anti-primitivism does, and accordingly the connectivist version is better-placed to resist Dasgupta’s objections. As far as I can see, Bennett could incorporate connectivist anti-primitivism into her building framework without introducing difficulties elsewhere in the system.

## 5. Open questions about building

My final concern is one which is applicable to the literature on grounding and dependence more widely. It is a little unfair to bring this concern up against Bennett, since *Making Things Up* is probably more sensitive to the tension I shall discuss than is typical in the literature. But it is not free of the tension, and resolving it may require altering basic aspects of Bennett’s programme.

The tension I have in mind is between the neutrality required of building for it to play the methodological role of formulating competing metaphysical hypotheses, and the non-neutrality required of building for it to be the subject-matter of metaphysical hypotheses. The former role, but not the latter, requires the application of building ideology to metaphysically impossible examples. This tension manifests in various places in the book, for example in a tension between the rejection of putative cases of symmetric dependence in the discussion of directedness and the desire to remain open to speculative hypotheses such as priority monism during the discussion of building monism.

Bennett is committed to a picture of the metaphysics of dependence as a broadly *a priori* enterprise: ‘Although one should indeed ask an engineer how an airplane is put together, one should ask a philosopher about the nature of *putting together*’ (p.7). This approach enforces a certain epistemic open-endedness of our building concepts—building relations must be capable of accounting for worlds built up in various different impossible ways, since they must be capable of holding whatever our world turns out to be like. From this standpoint, if we cannot rule out a world of infinitely downwards complexity *a priori*, then it should not be ruled out by our conception of building either. That is in tension with the thought that building itself should be described by a part of our total metaphysical theory: from this standpoint, if we were to conclude that (say) gunk is metaphysically impossible, it ought then to be open to us to adopt an account of building that rules it out.

This tension cannot be resolved, I think, without some fairly major departures from the usual methodology within the metaphysics of dependence. I'd like to float the prospect here of a less *a priori* approach to the topic. Fundamental metaphysics is already exposed in various ways to the *a posteriori* deliverances of physics, for example with respect to the nature of space, time and matter; there is no reason in principle why the metaphysics of building should not likewise be responsive to the way in which our best physics of the fundamental should turn out. If the best explanation available of some physical phenomenon turns out to require certain complexities in our account of building, then we should adopt a complex account; but physics may equally turn out in a way that allows us to make do with a simpler account of building. That requires accepting that building cannot play the fully ecumenical role in formulating and comparing metaphysical hypotheses that it has sometimes been assigned; but giving up on that unrealistic ambition would not undermine any central component of Bennett's project.

## 6. Conclusion

Despite the objections I have raised in this review, I think *Making Things Up* is a very valuable book. Its signature achievements include a highly sophisticated account of fundamentality, an account of the makeup of ordinary objects which challenges mereological orthodoxy and brings important causal resources to bear, and a powerful rebuttal of the possibility of symmetric dependence. Bennett has set the agenda and the standard for future work in the metaphysics of dependence and fundamentality. \*

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\* I am very grateful to Nicholas Jones and Naomi Thompson for comments on an earlier draft of this review, and to Karen Bennett for helpful discussions. This work forms part of the project A Framework for Metaphysical Explanation in Physics (FraMEPhys), which received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (grant agreement no. 757295).

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