

Meeting 7: Unifying Grounding and Causation? (Pt. 2)

I. Bennett on Building Relations

Bennett is a kind of determination/dependence/grounding pluralist, who countenances a range of generation or production relations that she calls *building relations*, including at least the following:

- *composition* (which is related to *parthood* as follows: xx [at least partly] compose y iff each x among xx is a part of y),
- *constitution*,
- *set formation*,
- *realization*,
- *grounding*,
- *causation*.

She holds that these building relations *form a unified family*, in the sense that they deeply resemble each other in a way that allows the family as a whole to appear in interesting generalizations and to do explanatory work.

Her analogy: the family of building relations “is more like the group of noble gases than like . . . the group of all elements whose names in English begin with ‘A’” (p. 70).

And she holds that there is no big-‘b’ Building relation of which the others are versions.

Bennett’s inclusion of causation on this list is one of the most controversial portions of her position, so today we will look at her arguments for taking causation to be a building relation.

A more traditional approach distinguishes “vertical” building relations such as grounding and composition from “horizontal” non-building relations such as causation.

II. Bennett on Causation as a Building Relation

According to Bennett, “[b]uilding is causally tainted,” in two senses (p. 68).

The first kind of causal taint: *causation is itself a building relation*.

In saying this, all she is claiming is that causation resembles the other building relations in various important ways, not that causation is exactly like those relations.

For instance, she thinks causation has three features shared by all building relations: (1) it is *asymmetric* (and hence directed); (2) it is a *necessitation* relation (given the circumstances); and (3) it licenses *generative* locutions such as ‘in virtue of’, ‘because’, ‘make’, ‘make it the case’, and ‘explain’.

Bennett also provides two positive arguments for including causation in the family of building relations:

- *Bennett’s first argument*: We take various analogies between causation and the other building relations to be illuminating, which requires us to take the similarities between causation and those other relations to be neither trivial nor accidental.

Five examples of such analogies:

1. Just as Humeans vs. anti-Humeans (supposedly) debate whether causation is itself built, we can ask whether the vertical building relations are themselves built.
2. Just as we can ask whether chains of causation must eventually stretch back to something uncaused, we can ask whether chains of vertical building relations have to bottom out in something unbuild.

3. Just as we can interpret the slogan “Nothing comes to be *ex nihilo*” to mean “Nothing is uncaused,” we can interpret it to mean “Nothing is (vertically) unbuilt.”

We can also give it two mixed readings: “Nothing that is caused is (vertically) unbuilt” and “Nothing that is (vertically) built is uncaused.”

4. Just as we are tempted to think that the principle “Any event that has more than one sufficient cause [at a given time?] is causally overdetermined” is true, so too are we tempted to think that “Any entity that has more than one complete vertical building base is overdetermined” is true.

(But this second principle is not remotely plausible unless we restrict it in some way: if f grounds h because f grounds g and g grounds h , it need not follow that h is overdetermined. So the lack of an analogy here would seem to cut against the case she is trying to make.)

5. Just as we can appeal in our theories to the notion of a *causal role* (i.e. “a location in a causal nexus, defined by various forward- and backward-looking causal powers” [or relations?]), so too can we appeal to the notion of a *vertical building role* (i.e. a “location in a building nexus, defined by various ‘upwards’- and ‘downwards’-looking relationships”) (pp. 76-77).
- *Bennett’s second argument:* The depth of the similarities between causation and vertical building is the best explanation of why we take the following methodological principle to be true: “[W]here and when parallel questions arise about causing and vertical building, the default position should be to adopt parallel answers to them. One should not break the analogy without argument” (p. 78).

Three objections to Bennett’s claim that causation is a building relation:

- *objection #1:* Building relations cannot form loops, but closed causal loops are possible; for example, consider cases involving time travel.

Bennett’s reply: It is not clear that time travel is possible, precisely because closed causal loops are perplexing. But if they are possible, we should also think that loops of vertical building are possible.

- *objection #2:* By your own admission, building relations are necessitating (when we hold fixed the laws and the relevant background conditions). But causation is not necessitating, because there can be indeterministic causation.

Bennett’s reply: It is not clear that indeterministic causation is possible. But if it is possible, we should also think that indeterministic vertical building is possible.

Bernstein’s example of a case of indeterministic causation: “a particle’s decay will cause an alarm to sound, and it is indeterministic whether or not the particle will decay” (p. 25)

But this is a bad example: what we want is a case in which *given* that one event occurs, it is indeterministic whether a second event occurs, and yet the first still counts as a cause of the second, not a case in which whether or not the first occurs is indeterministic.

Bennett provides a better example of would-be indeterministic causation: “Perhaps some action of mine, A, makes a particular event, B, 90 percent likely to follow, significantly more likely than it would have been without my action. And suppose B indeed comes to pass. Didn’t A cause it, even though it did not necessitate it?” (p. 80).

Bennett doubts this is truly a case involving an indeterministic singular causal relation between particular events. What tipped the scales and made it the case that B does happen? 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, then B is “random, uncaused by anything at all” (pp. 80-81).

(But do we really want to say, on this dilemma's second horn, that B has no causal history? So if event B is your dying, and I performed A precisely because it would make your death 90 percent likely, I can avoid litigation for killing you, because I didn't cause your death?)

- *objection #3*: If causation is a building relation, then causes are always more fundamental than their effects. But that's crazy!

Bennett's replies: First, "to say that one thing is more fundamental than another is to say nothing more than that the first thing stands in one or another (to be specified) pattern of building to another" (pp. 81-82). (But the objector will also object to that being what 'fundamental' means, if causation counts as a building relation!)

Second, it doesn't sound so odd to describe the Big Bang as "the most fundamental event of our universe." (But it does sound odd to describe later events as being less fundamental.)

Third, maybe it's only true of *the building relations other than causation* that builders of that type are more fundamental than what they build. (But then do we have to revisit her two arguments for causation being a building relation, if there is an important disanalogy between causation and the other building relations?)

III. Bennett on Causal Involvement in Other Building Relations

The second kind of causal taint: *some particular building relations themselves involve causation* (in the following sense: their instantiations sometimes hold in virtue of causal facts).

Three examples of such casually-penetrated vertical building relations:

- *example #1*: Functionalist accounts of the realization relation.

A typical account of this sort:

For (an instance of) functional property P to be realized by (an instance of) property Q at time *t* is for (that instance of) Q to play, at *t*, the causal role characteristic of (instances of) P.

Given Rosen's Grounding-Reduction Link, it follows that some instances of the realization relation are themselves grounded in certain facts about a thing's causal powers.

- *example #2*: Cases in which one thing composes another via a building process that unfolds over time.

Bennett's two leading examples of this:

"I built this castle from the Lego blocks that were on the floor this morning."

"This cake is made from eggs, sugar, flour, etc."

Bennett claims these cases involve a thing at one time being composed by some things at an earlier time, where that composition relation holds partially in virtue of various causal processes.

In her discussion, Bennett moves back and forth between sentences like the following:

- "I built [or: made] the castle at t_2 from the Lego blocks at t_1 ."
- "The castle at t_2 was built [or: was made] from the Lego blocks at t_1 ."
- "The castle at t_2 is built [or: is made] from the Lego blocks at t_1 ."
- "The castle at t_2 is composed of the Lego blocks at t_1 ."
- "The Lego blocks at t_1 compose the castle at t_2 ."

But to my mind, there is a crucial difference between (a)-(b) and (d)-(e): the former directly ascribe a certain act of agency in a way that the latter do not. And (c) I can hear either way.

Thus let us focus on sentences like (e), so that it's clear we're dealing with a building relation in Bennett's sense. Call the built relation at issue in sentence like (e) 'diachronic composition'.

Bennett imagines a two-stage objection to her suggestion that diachronic composition is a genuine building relation that (at least sometimes) holds in virtue of causal facts:

first stage: Claim that sentences like (e) can be given truth-conditions that do not invoke a diachronic composition relation.

second stage: Claim that it follows that there is no such thing as diachronic composition.

Bennett grants that the first stage can be successfully carried out, with some work. A first pass attempt at finding the relevant truth conditions:

TC₁. “ xx at t_1 compose y at t_2 ” is true iff (1) xx exist at t_1 , (2) y exists at t_2 , and (3) at t_2 xx compose y .

But (TC₁) doesn’t work for cases in which the parts, xx , don’t survive the process by which the composite, y , comes into existence, as happens when a cake is made out of eggs. So let’s try:

TC₂. “ xx at t_1 compose y at t_2 ” is true iff

(1) xx exist at t_1 ,

(2) y exists at t_2 and is composed at t_2 of some zz such that either (a) at t_2 $xx \cong zz$, or (b) xx are composed at t_1 of some pp such that at t_2 $pp \cong zz$,

where ‘ $xx \cong yy$ ’ is shorthand for ‘most of xx are among yy , and vice versa’.

Clause (2b) is supposed to handle the eggs case: the eggs (and other ingredients) at t_1 are fully composed of various molecules most of which persist at t_2 and compose most of the cake at t_2 .

But clause (2a) leads to odd results: if Lego blocks xx at t_1 compose castle y at t_2 in virtue of that clause holding, and z is some other random Lego block that exists at both t_1 and t_2 , then xx together with z at t_1 also compose y at t_2 . So we’re better off with:

TC₃. “ xx at t_1 compose y at t_2 ” is true iff

(1) xx exist at t_1 ,

(2) y exists at t_2 , and

(3) either (a) y is composed at t_2 of xx , or (b) y is composed at t_2 of some zz and xx are composed at t_1 of some pp such that at t_2 $pp \cong zz$.

Two reasons why conditions (1)-(3) obtain in virtue of causal facts:

1. Conditions (1) and (3a) require xx to persist from t_1 to t_2 , and “on any plausible theory, persistence is a causal process” (p. 90). Similarly, condition (3b) requires most of pp to persist from t_1 to t_2 .
2. In ordinary cases, there will be a causal story about how xx (or most of pp) come to be parts of y . “In the case of the cake, that story involves a person and some cookware” (ibid.).

Where Bennett gets off the boat is at stage two of the objection: the objector infers from TC₃ that diachronic composition does not exist, but she thinks it’s more plausible to infer that diachronic composition does exist and is instantiated in virtue of the obtaining of conditions (1)-(3).

- *example #3:* “[B]uilding relations can hold *over an interval*, between momentary relata and relata that only exist or obtain over time, in virtue of causal relations among the momentary relata” (p. 95).

Imagine a solid chain, each of whose links is made up of a single particle moving very quickly in an elliptical orbit. Bennett’s claims about this case: “The chain is composed of the particles; its properties—solidity, mass, shape, and so forth—are realized, grounded, or microbased in the behavior of those particles. However. *There is no single time at which any of those building relations hold.* . . . The chain’s properties are built over an interval, out of ongoing causal processes” (pp. 97-98).

IV. Shaheen on the Ambiguity of ‘Because’-Talk

Two forms of ambiguity:

- The terms ‘bank’ (in the financial institution sense) and ‘bank’ (in the riverbank sense) are *homonyms*: separate terms with intuitively unrelated meanings that happen to be graphemic/phonetic doppelgangers.
- The term ‘healthy’ is *polysemous*: a single term that can literally express different, intuitively related meanings in different contexts (for example: ‘healthy children’ vs. ‘healthy meals’).

Shaheen argues that ‘because’ is polysemous, sometimes expressing a sense associated with metaphysical explanation, other times expressing a sense associated with causal explanation.

One standard way of testing for ambiguity is via a *conjunction-reduction test*. Consider (numbering from article):

13. The sky is light, and the dumbbell is light.
14. The sky and the dumbbell are light.
15. This meal is healthy, and this urine is healthy.
16. ??This meal and this urine are healthy.

Let a *reduced conjunction* be a conjunction that results from deleting repeated words (and making the resulting sentence grammatical).

Let the *reduced material* be the expressions deleted in order to form a reduced conjunction.

Let a *crossed reading* of a reduced conjunction be an understanding of the sentence on which the reduced material is interpreted differently for each conjunct.

the conjunction-reduction test: If a reduced conjunction has a crossed reading that sounds sylleptic/zeugmatic/punny (in the way that “She caught the train and a bad cold” does), then this is good evidence that one of the expressions in the reduced material is either homonymous or polysemous.

Shaheen’s evidence in favor of ‘because’ being polysemous:

18. There’s a table here because we asked for one and because there are simples arranged tablewise here.
20. There’s a table here because we asked for one and ??there are simples arranged tablewise here.
19. Vixens visit here because rabbits visit here and because female foxes visit here.
21. Vixens visit here because rabbits visit here and ??female foxes visit here.
24. There is a chair here because there are simples arranged tablewise here [since the local facilities management team always brings in a chair whenever that’s the case], and there is a table here because there are simples arranged tablewise here.
25. ??There is a chair here and there is a table here because there are simples arranged tablewise here.
30. Germany beat Portugal because they scored four more goals and because Pepe got a red card.
31. Germany beat Portugal because they scored four more goals and ??Pepe got a red card.

Some objections that Shaheen considers:

- *objection #1*: We can reproduce similar data using only causal (or only metaphysical) explanantia that screen each off. Consider:
 - i. Germany beat Portugal because Pepe got a red card and ??Pepe head-butted Muller.
 - ii. There’s a piece of furniture here because there’s a table here and ??there are simples arranged tablewise here.

Shaheen’s reply: But in these cases, the conjunctions are already bad before the last stage of reduction:

- i*. Germany beat Portugal because Pepe got a red card and ??because Pepe head-butted Muller.
- ii*. There a piece of furniture here because there's a table here and ??because there are simples arranged tablewise here.
- *objection #2*: These reduced conjunctions are all infelicitous because deleting that second 'because' forces us to interpret the reduced conjunction as positing a single explanation featuring a conjunctive explanans, rather than a conjunction of two explanations with non-conjunctive explanantia. In general this seems to happen when we apply the conjunction reduction test to connectives. Consider:
 - iii. A European team will win the World Cup if Germany wins the final match, and a European team will win the World Cup if Portugal wins the final match.
 - iv. A European team will win the World Cup if Germany wins the final match and if Portugal wins the final match.
 - v. A European team will win the World Cup if Germany wins the final match and ??Portugal wins the final match.

Shaheen's reply: First, "uttering (20) and (21) with the right prosody solves the problem" (p. 849, n. 44). (Really? Can the right prosody render (v) felicitous as well?) Second, we can switch to sentences involving two-place predicates rather than two-place connectives, such as:

- 20*. The fact that there's a table here obtains because the fact that we asked for one obtains and ??the fact that there are simples arranged tablewise here obtains.
- *objection #3*: This last move doesn't entirely solve the problem, because sometimes reduced conjunctions ascribing two-place relations become infelicitous due to our tendency to interpret that relation as holding with regard to a conjunctive relatum. Consider:
 - vi. Prince Harry is a descendant of Prince Charles and a descendant of Queen Elizabeth II.
 - vii. Prince Harry is a descendant of Prince Charles and ??Queen Elizabeth II.

Shaheen's reply: We can solve the problem by adding a clause that cancels our tendency to interpret the sentence as involving a conjunctive relatum, like so:

- vii*. Prince Harry is a descendant of Prince Charles and Mary Stuart, though of course they never met, having lived centuries apart.
- 20**. The fact that there's a table here obtains because the fact that we asked for one obtains and ??the fact that there are simples arranged tablewise here obtains, even though those two facts explain it differently.
- *objection #4*: If 'because' is polysemous and has both a causal and a metaphysical sense, why are sentences attributing Schaffer-style hybrid explanations felicitous?

38. The gas has temperature T at t_1 because it has mean molecular energy E at t_0 .

Shaheen's first reply: The 'because' in (38) is being used in the causal sense.

Shaheen's second (and preferred) reply: The 'because' in (38) is being used in the metaphysical sense, which is merely a not-purely-causal sense, rather than a purely non-causal sense.

But either of these replies runs into troubles with variants of Shaheen's own test. Consider:

- viii. The gas has temperature T at t_1 because [in the metaphysical sense] the gas has mean molecular energy E at t_1 , because [in the either the metaphysical or the causal sense] it has mean molecular energy E at t_0 , and because [in the causal sense] I made sure it has temperature T at t_1 .
- ix. The gas has temperature T at t_1 because the gas has mean molecular energy E at t_1 , ??it has mean molecular energy E at t_0 , and ??I made sure it has temperature T at t_1 .