Issues addressed in chapter (3):

    A. Is causation a building relation?

    B. Is building a form of non-causal determination?

- If causation itself is a building relation, then building can't be non-causal determination—but note that one might answer 'no' to (B) while denying that causation itself is a form of building. More on this later.

The standard view:

There's a distinction between *vertical* (building) and *horizontal* (causal) determination, despite certain prima facie similarities:

- Causes *diachronically* determine (and *causally* explain) their effects
- Building entities *synchronically* determine (and *non*-causally explain) what they build.

A natural way to read the <u>distinction between vertical and horizontal axes</u>: vertical axes connect entities at <u>different</u> levels of <u>fundamentality</u>, horizontal (causal) axes connect (events, processes, states, facts?) at the <u>same</u> level of <u>fundamentality</u>. (p.45)

- The standard view answers 'no' to (A) and 'yes' to (B):

    a) Causation isn't a building relation because causes and effects are at the same level.

    b) Building relations aren't causal because they are synchronic, while causation is diachronic

Bennett's aims in chapter (3)

Undermine the standard view, by: (i) showing that causation <u>can</u> plausibly be considered a building relation, (ii) arguing that other building relations such as realization and composition <u>cannot</u> plausibly be considered *non*-causal. [pp.45-57 argue for (i); the rest of the chapter focuses on (ii). We will focus on (i) today, and the remainder next time.]

- If causation is a building relation, then (a) is false and (b) is unmotivated.
- But are causes really more fundamental than their effects? [Bennett postpones this question to chapter 4, so until then, allow for the sake of argument that they are.]

As Bennett notes on p.46, if causes are more fundamental than their effects, then given the account of building in question, it follows right away that causation is a building relation. Recall that:

> R is a building relation iff: [(i) R is asymmetric and irreflexive; and (ii) the 'input' relatum is more fundamental than the output; and {(a) the input is minimally sufficient, in the circumstances, for the output, or (b) the existence, instantiation or occurrence of the output counterfactually depends on that of the input}]. (p.32)

But is the class of relations we get from adding causation to realization, grounding, composition etc., unified in an *interesting* way? [See p.47, paragraph 2, for an admission that not all W-unities are interesting.]

- The challenge Bennett takes up in the first half of chapter (3) is to argue that, setting aside the issue of relative fundamentality, the resulting family is unified in an interesting and illuminating way.

Assuming causation to be a building relation according to Bennett's account of building, if it turns out that the class of vertical building relations plus causation ('building+') isn't interestingly unified, then so much the worse for her account of building. [It follows that Bennett's account of building doesn't pick out what, if anything, is interestingly in common to building relations.]

- So: Bennett needs to say one of two things: either (i) causation is a building relation, causes are more fundamental than their effects, and *the building+ family has a non-trivial unity*; or (ii) causation isn't a building relation after all.

Why the building+ family is interestingly unified?
Bennett has two arguments here: (interesting) unification is (i) "required to license [certain cases of]...illumination by analogy"; (ii) "the best explainer of the truth of a related but stronger methodological principle". (p.49)

Illumination by analogy—five analogies

1. *Humeanism about causation and the question of the fundamentality of building relations*. (i) Is causation fundamental? [No, according to Lewis' account (supervenient on local matters of particular fact)] (ii) Is building fundamental? (p.49)

2. *Cosmological and fundamental level arguments*. (i) Must there be a first cause, to avoid a regress of (causal) explanations? (ii) Must there be a fundamental level to avoid a regress of (non-causal?) explanations? (p.50)

3. *Ex-nihilo principles*. (i) Is anything uncaused? (ii) Is anything unbuilt? Further questions: (iii) must unbuilt entities be uncaused? [if so, then bringing something into being requires vertical building] (iv) must uncaused entities be unbuilt? [if so, then if an entity is vertically built, it is a caused entity—it was brought into being somehow]. (pp.50-51)

4. *Causal exclusion problem*. (i) Could any effect have more than one sufficient cause? (ii) Could any entity have more than one sufficient building base? (iii) Could anything have more than one horizontal-or-vertical sufficient cause-or-base? [Certain answers to (i) carry over naturally into (ii), suggesting a mixed principle as an answer to (iii)]. (pp.52-54)

5. *Analogy between causal roles and building roles*. At a suitably abstract level, both kinds of role can be thought of in terms of an entity's place in a structure of related entities [related causally, mereologically; others?] (p.55)

Underlying methodology
"[W]here and when parallel questions arise about causing and vertical building, the default position should be to adopt parallel answers to them." (p.56)

- If true, this principle means, for instance, that (in the absence of good reasons to the contrary) we should (a) be Humeans about both causation and vertical building, or neither, (b) believe in both a first cause and a fundamental level, or neither, (c) take a fully general stance (as Kim does) with respect to vertical and horizontal overdetermination.

The gist of this argument (pp.56-7): it would be very odd, methodologically, to be deeply worried about (for instance) *causal* overdetermination, but not have a similar concern about *vertical* overdetermination. But why should this be the case?

- Bennett: there are "deep and rich similarities" between causation and building, which justify this methodology.

- And that's all she requires to support her claim that the W-unity of horizontal and vertical building is interesting.

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Further thoughts

<u>Overdetermination</u>

[Aside: <u>Bennett on overdetermination</u>, from her 'Why the exclusion problem seems intractable...', Noûs 2003.

If E is overdetermined by C1 and C2 then the following must be non-vacuously true: (i) Had C1 occurred without C2, E would have occurred; (ii) had C2 occurred without C1, E would have occurred; (iii) C1 is sufficient for E; (iv) C2 is sufficient for E.]

There seem to be cases of causal overdetermination (albeit rare); but are there any cases of vertical building overdetermination?

- What about multiple redundancy in mechanisms? Cars with both hydraulic and mechanical brakes; a laptop plugged into a wall charger; multiple support columns for skyscrapers; are these all cases of realization overdetermination?

- Isn't this just causal overdetermination again? Perhaps, but then Bennett will go on to argue that realization is 'causally tainted', so maybe we should accept realization overdetermination.

- Composition and the problem of the many. Perhaps this is a form of mereological overdetermination.

<u>Horizontal and vertical overdetermination</u>

How is causal overdetermination possible at all? Suppose that for an effect to be horizontally overdetermined, it must also be possible for it to be vertically overdetermined (think of instances of determinable properties that can be *multiply determined*).

- Firing squad where the victim is shot by several different marksmen at once: are these cases where the same event is brought about *in* n *different ways at once* (by *n* causes which cause *n* distinct vertical building bases of the death)?

- Suppose C1 causes E1, C2 causes E2 (both building base events—determinate of the determinable *being dead*). Each of E1 and E2 would independently have been sufficient to build the event of the victim's being dead.

- This may work for process theories of causation, such that causing a built event involves generating or producing its building base. Less obvious that it works for Humean theories of causation (is Humean overdetermination <u>possible</u>?)

<u>Do causes generate or produce their effects?</u>

See Hall, <u>'Two Concepts of Causation'</u>. [See also Schaffer, 'Causation by Disconnection', *Philosophy of Science* 67 (2000).]

Causation by omission; double prevention. A heart attack causes a death; pulling a trigger causes a gun to fire.

- Even if we recognise the analogy between causation and vertical building, it still isn't clear that causes build their effects.

- When a lighthouse's failure causes a ship 10km away to sink, does the event of the lighthouse's failing (or the fact of its having failed, or the property of the light not working...) in any sense *build* the ship's sinking?

Perhaps Bennett has in mind a view of causation as *generation* or *production* (certainly what <u>Kim</u> has in mind). But then what about all the apparent cases of causation that don't involve transfer of energy, or 'process-linkage' (Schaffer)? Is it clear (*in all cases*) that causal relations are interestingly similar to vertical building relations?