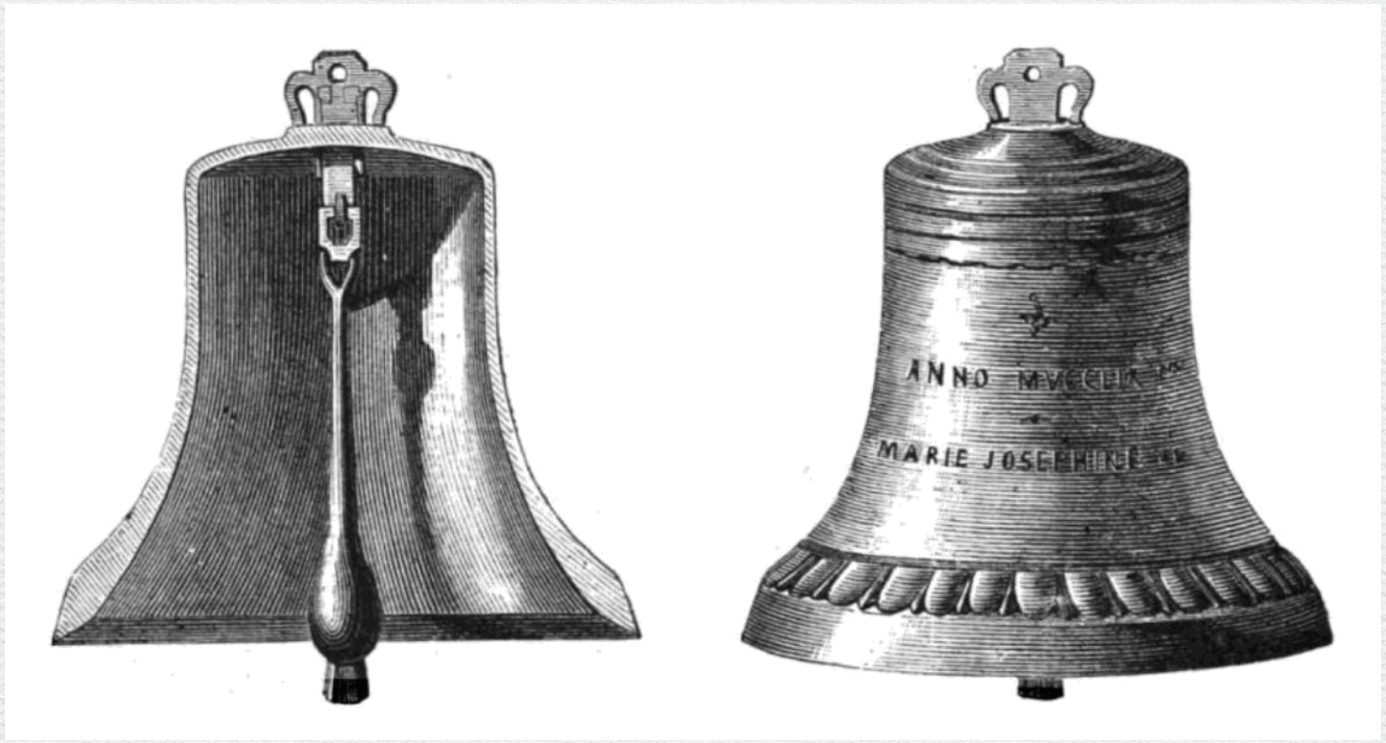
Causation

The Cement of the Universe?

Consider the Angelus



Every day at 6.00, 12.00, and 18.00,
the bells ring forth in the Basilica steeple.

Two Regularities

- Every day when the Angelus bell rings at noon, the students eat their lunch.

- Every time the the clapper strikes the resonator, the bells emits a determinate set of tones.

  - In a well-tuned bell, a bell in tune with itself, its dominant harmonic tones are in harmony with the strike note.

    - But that is by the bye.

Two More Regularities

- In a well designed row of dominoes, each one causes the following domino to fall.
- All of the dominoes in Knightsbridge are black; so too are all of the hats worn by bachelors in that district of London.

One Easy Thought

- In one each of these pairings, one of the pairs, though obtaining exceptionlessly, obtains accidentally.
- In the other, the exceptionlessness is not accidental.
    - It is undergirded by some manner of necessity.

What manner of necessity?

- The necessity of these regularities is not logical.
- Maybe it is metaphysical?
    - If so, how so? Is it really a law of metaphysics that one a clapper hits a resonator a bells emits a sound?
        - Compare: nothing can be red and green all over.
- Perhaps it is physical?
    - These things happen by dint of some law of nature?
        - If so, are such laws more than peculiarly well-entrenched regularities?
        - Or are the laws of nature *causal* laws?
- Or is perhaps this talk of necessity a mistake?

A Humean Intervention

- Two Humean reasons for supposing it is indeed a mistake
  - The origin of ideas
  - The unavailability of modality

The Origin of Ideas I

- ‘Every idea is copied from some preceding impression or sentiment; and where we cannot find any impression, we may be certain that there is no idea. In all single instances of the operation of bodies or minds, there is nothing that produces any impression, nor consequently can suggest any idea of power or necessary connexion

—Hume, *An Inquiry Concerning Human Understanding* VII. 2

The Origin of Ideas II

- ‘All events seem entirely loose and separate. One event follows another; but we never can observe any tie between them. They seem conjoined, but never connected. And as we can have no idea of any thing which never appeared to our outward sense or inward sentiment, the necessary conclusion seems to be that we have no idea of connexion or power at all, and that these words are absolutely, without any meaning, when employed either in philosophical reasonings or common life.’

—Hume, *An Inquiry Concerning Human Understanding* VII. 2

A Humean Argument

1. If an idea derives from no antecedent impression then that idea is specious, arising at best from some customary connexion or transition of the imagination.

2. If an idea arises from some customary connexion or transition of the imagination, then no state of the world corresponds to it.

3. There is no antecedent impression of our idea of necessary connexion.

4. Hence our idea of necessary connexion arises from some customary connexion or transition of the imagination.

5. Hence, no state of the world corresponds to our idea of necessary connexion.

6. If no state of the world corresponds to our idea of necessary connexion, then no causal connexion corresponds to our idea of necessary connexion.

7. If (6), no instance of causation is (or betrays) any necessary connexion.

8. If no instance of causation is (or betrays) any necessary connexion, then causes are, so to speak, a-modal.

9. So, causes are a-modal.

The Unavailability of Modality

1. For two discrete events e_1 and e_2, it is possible to imagine the existence of e_1 without e_2.
2. If it is possible to imagine the existence of e_1 without e_2, then possibly e_1 may exist without e_2.
3. If possibly e_1 may exist without e_2, then e_1 does not necessitate e_2.
4. If for any e_1 does not necessitate e_2, then if e_1 causes e_2, then causal relations are not necessary.
5. Hence causal relations are not necessary.

What then are causal relations?

- Causal connexions are but *constant conjunctions*:
  - *c* causes e *iff* (i) *C*-type events occur before *E*-type events; (ii) *C*-type events are contiguous with *E*-type events; and (iii) the occurrence of a *C*-type event gives rise to a customary transition in the imagination to an *E*-type events.
- This is an instance of so-called *regularity theories* of causation (RT).

Hume's 'Definition' of Cause

- According to Hume, a cause as 'an object precedent and contiguous to another, and where all the objects resembling the former are placed in a like relation of priority and contiguity to those objects that resemble the latter', and again as 'an object precedent and contiguous to another, and so united with it in the imagination, that the idea of the one determines the mind to form the idea of the other, and the impression of the one to form a more lively idea of the other.'

—Hume, *A Treatise on Human Nature* I.3 (p. 272 in *MCR*)

No Idea, No Necessity

- If we've no idea of necessity, we've no idea of causes *as* necessary.

Problems for RT

- Some regularities are plainly not causal.
- Some causes are (or could be) singular and not general.

Non-Casual Regularities

- Reid: the day follows the night follows the day follows. . .
- Russell: the whistle of the 17.00 train in the Manchester Station blows promptly at 17.00—which is just the moment each day with the shift of the workers in the adjacent factory ends.
  - Two notions here:
    - Regularities may supervene on genuine causes without its being the case that the regularities are themselves causal.
    - Regularities may be perfectly accidental, even if explicably so.

Singular Causes

- Germany's invasion of Poland caused WW I.
- God created the universe—that is, caused it to exist.
- More pedestrian:
  - S* wears cufflinks may of meteorite dust;S** loves meteorites and upon seeing the cufflinks swooned in admiration.
    - Plausibly, seeing the cufflinks caused S** to swoon in admiration.
    - Possibly, this happened but once in the history of the universe.
  - Sir Roger Bannister ran the first four-minute mile.
    - Plausibly, in so doing, he caused the record to fall below four minutes.
    - Necessarily, this happened but once.

A Better RT?

- Mackie: *x* causes *y* *iff* *x* is an INUS condition of *y*
  - That is, C is an INUS condition of R *iff*
    - C is an insufficient but necessary part of an unnecessary but sufficient condition for R's obtaining.
      - So, e.g., striking the match upon a striker is an insufficient but necessary part of an unnecessary but sufficient condition of the match's erupting in flame.
        - Striking is insufficient, because, among other things, oxygen is necessary.
        - Yet it's necessary, in the context, since without its being struck there would be no flame.
        - The broader condition—the match's being struck in the presence of oxygen with such and such a force is sufficient for the flame to erupt.
        - Yet that broader condition is not necessary, since one could have brought about the igniting of the flame by, e.g. training a magnifying glass upon the match.

Is this not modal?

- The notions of necessity and sufficiency are manifestly modal.
- Yet Mackie thinks these can be paraphrased away as:
  - *x* is necessary for *y* = if *x* had not occurred, *y* would not have occurred
  - *x* is sufficient for *y* = since *x* occurs, *y* occurs
- Here too it is utterly unclear how we avoid modality.

Is causation after all observable?

- Consider Anscombe:
  - I mean: the word 'cause' can be *added* to a language in which are already represented many causal concepts. A small selection: *scrape, push, wet, carry, eat, burn, knock over, keep off, squash, make* (e.g. noises, paper boats), *hurt* (Anscombe, 228).
    - One might think: in many of these cases, I am directly acquainted with a causing, that is, in a bringing about.
- Then again:
  - An example of a non-necessitating cause is mentioned by Feynman: a bomb is connected to a Geiger counter, so that it will go off if the Geiger counter registers a certain reading; whether it will or not is not determined, for it is so placed near some radioactive material that it may or may not register that reading (Anscombe, 297)