

Causation

Lecture 1

What are the issues?

1. Omnipresence of causal claims

- ‘Why’ questions
- ‘How’ questions
- ‘because’ claims

- Activity – making things happen
 - esp. transitive verbs of action
 - e.g. open the door = making/causing the door to open
- Making things – bringing things into existence
 - e.g. writing an essay, giving a lecture

Causal dispositions

- Ability – being able to .
- Susceptibility – being prone to
- ‘Active’ vs. “passive’ powers

2. Causal inquiries

- Particular (token) events – e.g. accidents
- General (type) conditions – e.g. meningitis
 - What's special?
- Can't we just 'observe' causal influence?
 - e.g. Sally hit the ball?
 - The brick's impact broke the window
- But how does observing causal connection differ from observing spatio-temporal succession: 'post hoc: ergo propter hoc' -
 - (cf. Michotte's experiments -
<http://cogweb.ucla.edu/Discourse/Narrative/michotte-demo.swf>

- From statistical correlations to causal connections?
- e.g. smoking/ cancer
- but: graduate/ overweight?
- heritability of schizophrenia? of IQ?

- Is agency a clear case? Can I be certain when I am an agent?

- What are we looking for?
- Causal ‘mechanisms’? (e.g. chemical bonds)
- A special, disturbing, factor (e.g. ice in the fuel pipe)

3. Metaphysics

- What are causes and effects?
Intuitively: changes – e.g.. motions, interactions. But also: forces – e.g. pressure, tension, pulling, obstruction
- Are these ‘events’? or states? or ...
- And how do these connect with physical objects, their properties and the relations between them?
- Are objects causally connected ‘worms’? Or is causation to be understood in terms of relations between changing properties of objects? Is there a priority here?

- Most fundamentally: is causation a ‘natural relation’ between events/changes in objects etc? Or should we move ‘up’ a level – from objects to concepts, from events to facts, and focus on causal explanations of facts?
- Explanations can be context-sensitive and pragmatic – e.g. where one cites salient or abnormal factors. But don’t such explanations rely on underlying ‘natural’ connections e.g. causal mechanisms.
- (Maybe it’s only some explanations that are distinctively ‘causal’; whereas the underlying ‘mechanisms’, and other natural connections, are not distinctively causal at all)

4. General laws and singular causes

- A common theme of causal inquiries is that they draw on general ‘laws’ concerning forces, changes, substances, properties etc. (think of physics and chemistry).
- One issue here is what it is that is distinctive of ‘laws of nature’: are they just very general regularities – or do they involve some inherent ‘natural’ necessity? And how do they connect with ‘natural kinds’ and their supposed distinctive ‘essences’?
- How then do singular causal connections relate to these general laws? Are they instances of general laws? (But how can they be? They are unique ..)

- A central issue here is how a plurality of features combine in a particular case to determine one effect.
- One model: vector analysis and ‘composition of forces’.
- Another model: relatively isolated stable systems and external forces.
- But how far are general laws an essential requirement? Can there be one-off causation? Are causal set-ups essentially repeatable? (What of the ‘Big Bang’?)

5. Free agency

- A special issue concerns human agency. This is plainly a causal power, but does it too rest upon general laws? If so, what laws (psychological?)
- Even more special is the situation of ‘free’ agency? Is the ‘spontaneous’ freedom of a moral agent compatible with a background of general laws? (Hume) Or must free agency be regarded as a distinct type of causal power? (Kant)

6. The Humean programme

- Hume's account of causation – whatever the detailed interpretation of it (see lecture 2) – introduces several themes:
- (i) singular causes are instances of regular connections
- (ii) cause and effect are spatially contiguous – there is no 'action at a distance'
- (iii) cause and effect belong to a temporally ordered process such that causes precede their effects
- (iv) there is a necessary connection between causes and effects

These provide us with a useful agenda, followed by a discussion of mental causation which addresses some of the issues central to debates about free agency.

7 Brief history (time permitting)

- Aristotle

Four ‘causes’ (aitiai – ‘reasons’ might be better)

- (i) Formal (essence)
- (ii) Material (matter – composition)
- (iii) Final (goal, function, purpose)
- (iv) Efficient (intervention)

Formal and material causes are ‘internal’
dispositions, powers

Final cause – applies to teleological systems

Efficient cause: typically an external stimulus to
change

Theology

- Add: God as creator etc. – i.e. agency as cause
- Medieval period: unified conception of natural law as
 - (i) observable general feature of the world, &
 - (ii) a product of God's benevolent creation

‘Modern’ – post-medieval – period:

- Rise of atomism – scepticism about Aristotelian essences/powers
- Increasing emphasis on efficient causes
cf. Hume
- But: remaining faith in real essences (Locke)
- And in agent-causation (Malebranche, Reid)
(One mustn't take Hume to be typical)

In Newton:

- (i) Inertia: causal power associated with persistence, not change
- (ii) Mass: ratio of momentum and velocity
- (iii) Gravity: measure of the acceleration imparted to a mass by another one (inverse square law)
- Question: ‘what is gravity? Newton ‘I refrain from any hypothesis’

- Kant:
- Causation is a ‘category’ and linked to substance: i.e. it’s a priori that substances – physical objects – are causally connected; though it’s an empirical matter just what the connections are (cf. Space).
- Mill:
- No a priori: so causation is empirical through and through – and scientific method involves determining causes of phenomena (Mill’s ‘methods’)

- Mach, Russell
- Causation is at most a pragmatic label for common-sense considerations; all serious work in science involves identifying and applying general laws, which are ‘descriptive’ and not ‘explanatory’.
- Einstein: general relativity and gravity?
- Meyerson
- Causal explanations are different from inquires based on general laws of nature.