

Causation Lecture 2

1 NECESSARY AND SUFFICIENT CONDITIONS

Sufficient Conditions	Necessary Conditions
C is a sufficient condition of E iff the obtaining of C suffices for E to obtain.	C is a necessary condition of E iff the obtaining of C is necessary for E to obtain.
C is a sufficient condition of E iff $C \rightarrow E$	C is a necessary condition of E iff $E \rightarrow C$
e.g. 'the alarm going off is a sufficient condition of my waking'	e.g. 'my breathing oxygen is a necessary condition for my survival'

- Some conditions are sufficient but **unnecessary** for an event. Others are necessary but **insufficient** (e.g. the examples above). However, sometimes conditions are both sufficient and necessary for an event (e.g. the alarm going off OR throwing water over me OR yelling in my ear OR ... is a sufficient and necessary condition for my waking).
- Hume: causes necessitate their effects. What does this mean?
 - **Answer 1:** Causes are necessary conditions of their effects.
 - **Problem:** The ball hitting the window is not a necessary condition of it breaking (we could alternatively hit it with a bat).
 - **Response:** Causes are necessary conditions of their effects **in the context in which those events occur.**
 - **Answer 2:** Causes are sufficient conditions of their effects.

2 ARE CAUSES NECESSARY OR SUFFICIENT FOR THEIR EFFECTS?

- Elizabeth Anscombe (1993) denies a **necessary connection** between causes and effects. This is because of probabilistic causation (the cause is not sufficient for the effect because it does not *guarantee* the effect).
 - **Example:** Contact with a disease and contracting the disease.
 - **Example:** Feynman's Geiger-counter bomb.
- **Response:** Argument from ignorance. The cause is sufficient for the effect; we just don't have enough information to *know* this.
 - **Counter-response (Anscombe):** Our best theories don't **determine** outcomes uniquely. They simply provide 'sufficient results of calculations' (1993, 96).
 - **Response:** We don't need to focus on our best theories here.
- **Counter-response:** There are non-probabilistic cases where the cause is not sufficient for the effect. For example, Mackie (1965)'s case of the short circuit causing the house fire.
 - **Response:** But what about causes as necessary conditions of their effects in the context in which the events occur?

3 DO WE HAVE EXTERNAL IMPRESSIONS OF CONNECTIONS BETWEEN EVENTS?

- **Argument (Hume):** We only have external impressions of **temporal succession, contiguity and constant conjunction**.
 - **Response (Anscombe):** We have external impressions of the connection between my movements and the pen rising, that is, of my **lifting** the pen.
 - **Counter-response:** We only have external impressions of constant conjunction between my movements and the pen rising, rather than the **connection** itself.
 - **Response (Anscombe):** We could say analogous things about movement: that we don't have external impressions of my hand moving, but just of my hand being in different places at successive times. This would be **too stringent** in the movement case, and the same should be said in the lifting case.

4 ANSCOMBE ON CAUSATION

- Anscombe argues that 'causality consists in the derivativeness of an effect from its cause' (1993, 91-2).
 - **Advantage:** We don't need regularities, and so can avoid issues of **singular causation** and **accidental regularities**.
 - **Problem:** Is Anscombe just relabelling causation as 'derivativeness'? Without an account of derivativeness, has Anscombe told us what causation *is*?
 1. **Response (?):** Perhaps we have a closer grasp on derivativeness than causation.

5 MACKIE AND INUS CONDITIONS

- Mackie (1965) offers a more **sophisticated regularity account**.
- We say 'the short circuit caused the fire'. However:
 - The short circuit is **insufficient** for the fire (e.g. we need there to be flammable material nearby, and the sprinklers to fail).
 - The short circuit is **unnecessary** for the fire (e.g. we could instead light a bonfire in the front room).
- On the other hand:
 - The short circuit is a **part** of a **sufficient condition** for the fire (e.g. the sufficient condition of the short circuit AND nearby flammable material AND the sprinklers failing).
 - The short circuit is a **necessary part** of this sufficient condition (e.g. nearby flammable material AND the sprinklers failing is not sufficient for the fire).
- Conversely:
 - This sufficient condition for the fire is **unnecessary** (e.g. we could instead light a bonfire in the front room).
- So: the short circuit is an **Insufficient** but **Necessary** part of an **Unnecessary** but **Sufficient** condition for the fire. The short circuit is an **INUS** condition for the fire.

- Some causes are not INUS conditions.
 - Some causes are **independently sufficient** for the effect (e.g. the alarm going off and my waking).
 - Some causes are necessary parts of sufficient conditions that are **also necessary** (e.g. cracking eggs in hot water and the creation of poached eggs).
- Consequently, C is a **cause** of E iff C is **at least an INUS condition** of E. C is at least an INUS condition of E iff:
 1. C is an INUS condition of E; OR
 2. C is a sufficient condition of E; OR
 3. C is a necessary part of a necessary and sufficient condition of E.
- Mackie's account is a **regularity account** by how he analyses sufficient and necessary conditions:
 - C is a sufficient condition of E iff **all C-events are E-events**.
 - C is a necessary condition of E iff **all E-events are C-events**.

6 CAUSAL FIELDS

- **Problem:** The sufficient condition for the fire has more than three factors. Some factors are necessary parts of the condition, but are quite outlandish (e.g. the presence of oxygen, the event of the world not being sucked into a black hole). Hence, the world not being sucked into a black hole is an INUS condition, and thus **cause**, of the fire!
 - **Response (Mackie):** The world not being sucked into a black hole is a **background condition** – part of the **causal field** – that we hold fixed when making causal claims. C is a cause of E iff C is at least an INUS condition of E **relative to the causal field F**.
 - **Counter-response:** What fixes the causal field if not the **context of discussion**? If so, might this render causation **interest-relative**, and thus **mind-dependent**?
 - **Response (?):** Perhaps the causal field is **objectively** fixed by the context.

7 BIBLIOGRAPHY

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