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Causation as Influence
Lewis's Main Theses

- It’s obvious that the simplest counterfactual analysis of causation breaks down in cases of “redundant causation.”
- It’s time to consider a new analysis of causation: rather than having a simple whether-whether counterfactual dependence between events, we should have a pattern of influence between the whether, when and how of events.
The Previous Unsatisfactory Counterfactual Analysis (in Lewis ‘Causation’)

- Event C is a cause of event E iff E depends counterfactually on C; in other words, iff, if C had not occurred, E would not have occurred.
* Problems with this analysis

First problem:

We need the right kind of relata: C and E must be distinct events – non-identical (e.g. the birth of the nephew and the fact of becoming an uncle), non-overlapping and non-implication. (e.g. ‘my speaking this sentence’ causes ‘my speaking the first half of it’ → Kim’s example ‘writing ‘rr’ and writing ‘Larry’)


Second Problem

- We need the right kind of counterfactual conditionals: We should not allow backtracking, or back-and-forward counterfactuals. We hold history fixed even at the price of a miracle.
Third Problem

- Causation is *transitive*: if C causes D, which in turn causes E, it follows that C causes E. However, we have no guarantee that the relation of counterfactual dependence will be invariably transitive.
Fourth Problem:

- This analysis does not capture three other kinds of causation: probabilistic causation, preemptive causation, and causation by, or of, absences. (We will focus only on the latter two kinds of problems.)
* Redundant causation

It sometimes happens that two separate potential causes for a certain effect are both present; and either one by itself would have been followed by the effect; and so the effect depends on neither.
Redundant Causation

- **Symmetrical redundancy:**
  Both candidates have an equal claim to be called causes of the effect.

- **Asymmetrical redundancy:**
  One of the two causes did cause the effect, the other didn’t. ➔
  [preemptive causation]
Trumping:

- One cause *trumps* the other by making the other redundant, even though the other by itself would have sufficed to cause the effect.
The Major preempts the Sergeant in causing them to advance. The Major *trumps* the Sergeant. However, if the Major had not made the order, the Sergeant’s order would have moved the soldiers forward.
Late Preemption (Late Cutting the Causal Chain):

- One cause completes the causal chain, while the chain from the preempted alternative is still on its way. The preempted chain is cut. The effect itself is what prevents its final step.
Example of Cutting the Causal Chain

Suzy throws first and the bottle shatters. When Billy’s rock gets to where the bottle used to be, there is nothing there. But if Suzy’s rock had not hit the bottle, Billy’s rock would still have shattered the bottle. Hence, by the counterfactual analysis, Suzy’s rock was not the cause of the bottle’s shattering.
The modal fragility of Events

- If we say that Billy’s breaking the bottle would have been a different event, we are evoking uncommonly stringent conditions of occurrence for that event.

- Let us rather say that Suzy’s throw caused the shattering of the bottle in virtue of when-on-whether dependence. When the shattering occurred depended on Suzy’s throw. Without Suzy’s throw, it would not have occurred when it actually did occur.
* modal fragility

- An event is individuated not just by the time of its occurrence, but by whether and when and how the effect occurs: without C, E would not have occurred at all, or would have occurred at a time different from the time that it actually did occur, or would have occurred in a manner different from the manner in which it actually did occur.
JeeLoo Liu:
Q: Wouldn’t the event be too fragile that any trivial change could cause a change in the effect?

Lewis’ analysis:
✓ We have to decide when the difference is negligible (then it is spurious) and it is not. It is within our linguistic rights to make the call in different cases.

✧ All manner of irrelevant things that we would not ordinarily count among the causes of the effect can be expected to make some slight difference to its time and manner.... Almost everything that precedes an event will be counted among its causes.
A new counterfactual analysis:

Where C and E are distinct actual events, let us say that C influences E iff there is a substantial range $C_1, C_2, \ldots$ or different not-too-distinct alterations of C (including the actual alteration of C) and there is a range $E_1, E_2, \ldots$ of alterations of E, at least some of which differ, such that if $C_1$ had occurred, $E_1$ would have occurred, and if $C_2$ had occurred, $E_2$ would have occurred, and so on.
* causation as *pattern of influence*

Thus we have a pattern of counterfactual dependence of whether, when, and how on whether, when and how.
§ Summary of Lewis’ New Analysis of Causation:

- Causation is treated as a relation between two sets of events, one as the actual event C and its alterations; the other as the actual event E as its alterations.
- Causation is analyzed as a pattern of counterfactual dependence of whether, when and how the event occurred.
- Causation is seen as a pattern of influence: the pattern in which the cause influences the effect.
Summary of Lewis’ New Analysis:

- A good example of influence is a process capable of transmitting a mark, which could be a flow of energy, matter, momentum, or some other observed quantity.
- But the amount or the nature of alternation of the effect does not have to resemble the amount or nature of the cause’s alterations.
- There also does not have to be a (spatiotemporally) continuous process linking cause and effect.
COUNTERFACTUAL DEPENDENCE AND BACKTRACKING

- Time’s Arrow: Past → Present → Future
- Causation:
- Counterfactual Dependence
* Asymmetry of Counterfactual Dependence

- In general the way things are later depends on the way things were earlier.
- _____ The way the future is depends counterfactually on the way the present is.
- _____ The way the present is depends counterfactually on the way the past is.
- _____ Not so in reverse.
Lewis: No backtracking counterfactuals or backward causation

- Counterfactual dependence is asymmetric. Under this *standard* resolution, the backtracking argument is mistaken. If the present were different the past would be the same, but the same past causes would fail somehow to cause the same present effects.
- Effects do not precede their causes (or at least not ordinarily). Causation does not go backward (generally).