

Climate and Causation in History

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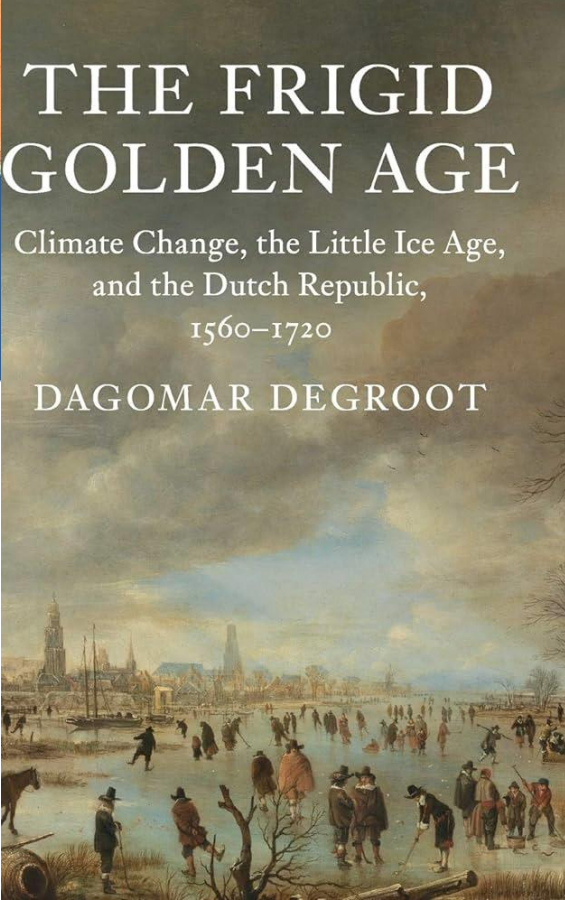
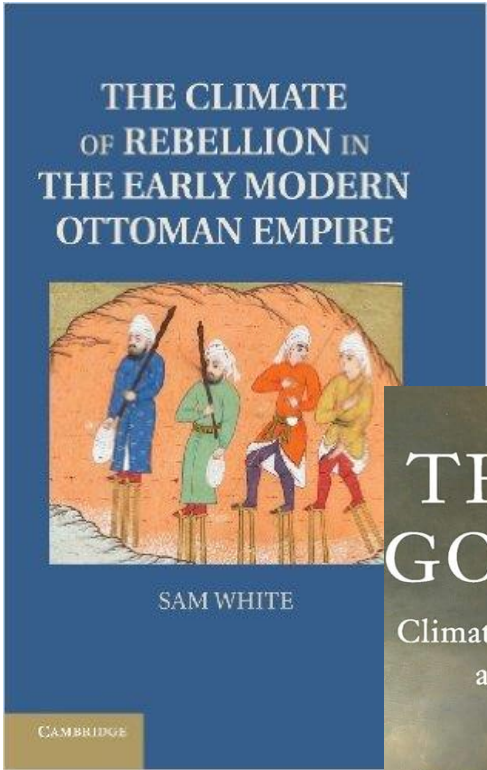
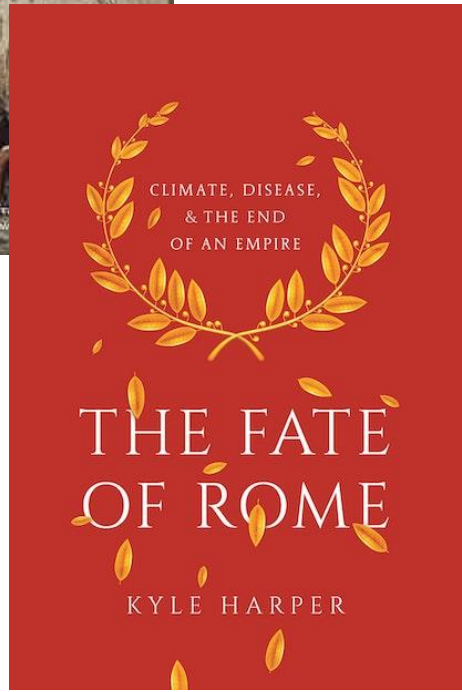
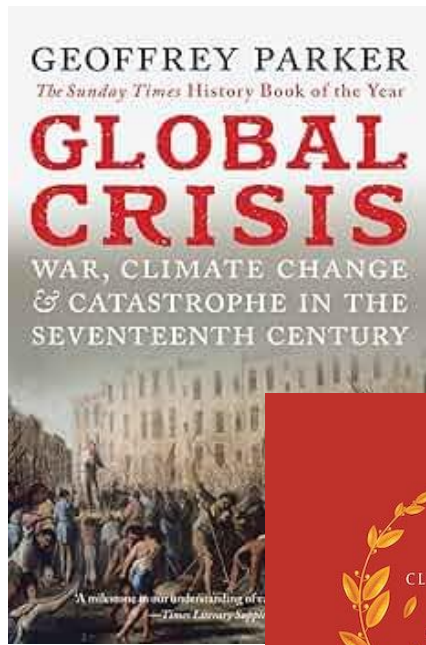
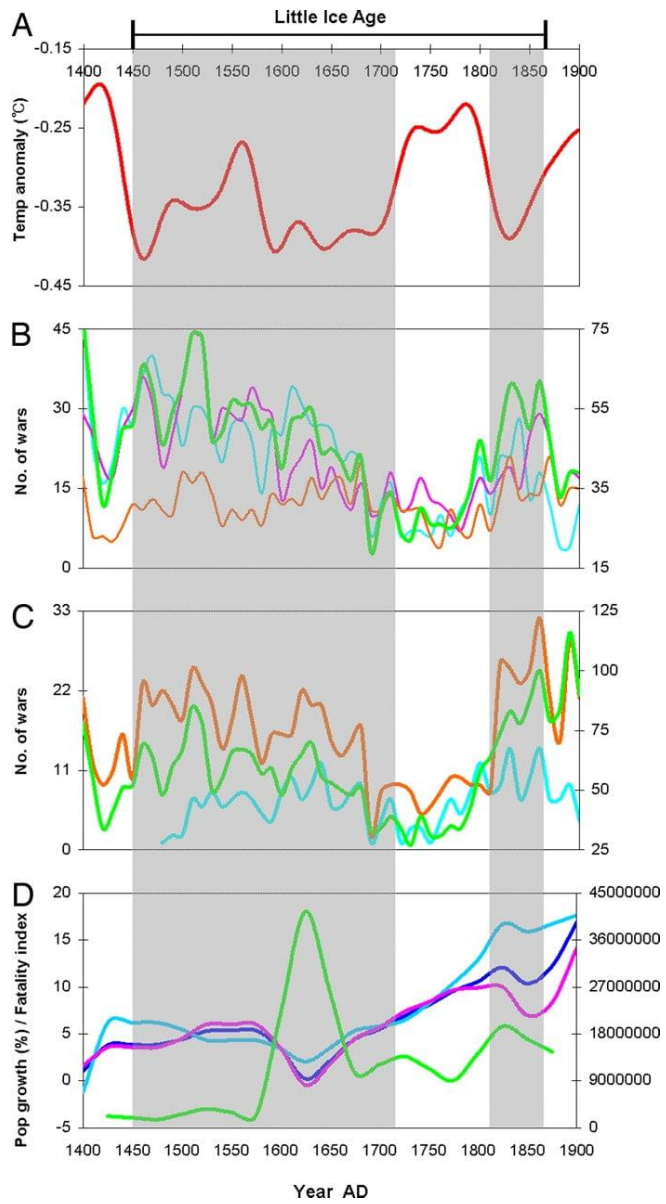
Did climate change cause historical change or crisis (and does it now?)

Large-n quantitative studies of climate, conflict, migration, etc.

Grand narratives of crisis collapse

Case studies of impacts and historical change

Stories of climate, culture, and adaptation



David D. Zhang et al., "Global Climate Change, War, and Population Decline in Recent Human History," *Proceedings of the National Academy of Sciences* 104 (2007): 19214–19.

Why it matters

We should get the history right

Questions about climate and causation pose challenges for historical methods

Pointless debates and divisions

Risk of distorting methods and concepts to fit preconceived ideas

❖ If we can't even decide on historical causation, how can we deal with responsibility and adaptation to global warming?

A Typical Climate History Question

Researcher begins a project...

Middle Eastern country, late 1800s, conflict and famine

Coincides with a year of drought and a strong El Niño

Visits two climate scientists to ask about ENSO and drought

Then two historians to ask about the drought and famine

Did El Niño cause drought?

Climate Scientist 1: **No**

- Drought pattern unlikely even in an El Niño year
- Most years of precipitation deficit not in strong El Niño years
- Other factors contribute to drought

Climate Scientist 2: **Yes**

- This drought pattern occurs much more often in simulations with strong El Niño than those without
- Strong El Niños associated with regional droughts in general

Did the drought cause the famine?

Historian 1: **No**

- Most droughts did not lead to famines
- Populations could usually adapt to *one year* of drought by eating wild foods or livestock.
- Famines are complicated: you can't just reduce them to one factor

Historian 2: **Yes**

- Most famines came during droughts
- Conflicts disrupted ordinary adaptations to drought years (and this was a year of conflict)

E.H. Carr's Dilemma

Speeding driver (Robinson)

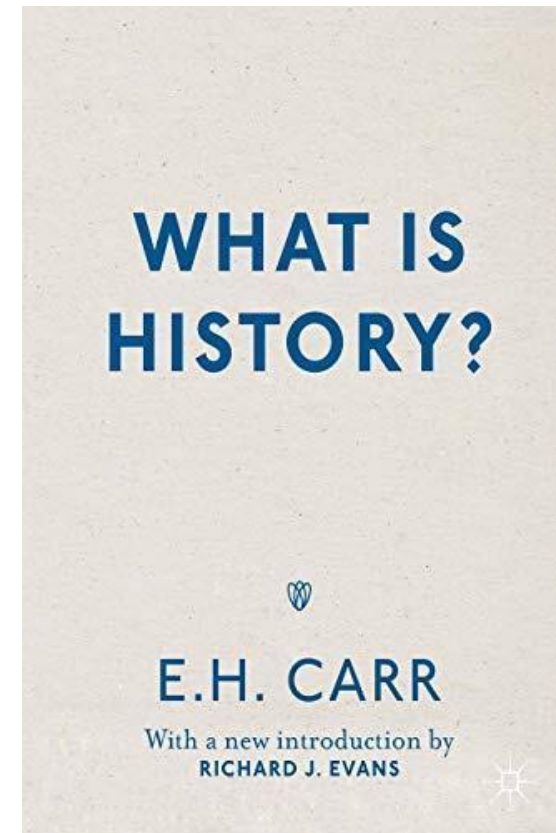
Defective breaks

Rainy weather

Pedestrian (Jones) crosses the street to buy
cigarettes

Fatal accident

..."Well, what are we to do?"



The Legal Approach

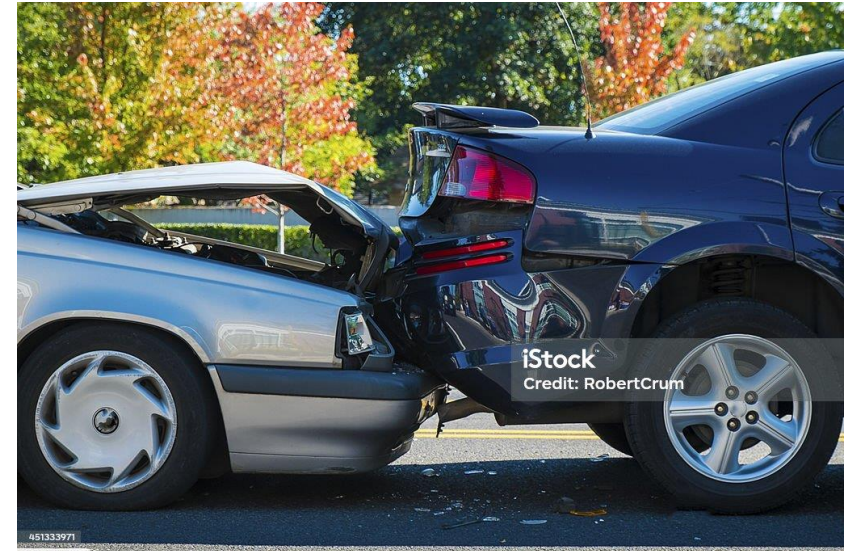
Tort law and questions of causation

Traditions of "common law"

Integrating theory with practice

Finding principles within "common sense" definitions

Causation in the third "restatement"



Key Ideas (1): “But for” and causal *responsibility*

Every search begins with the
“but-for” test: specific causal
necessity

But more is needed to establish
causal responsibility

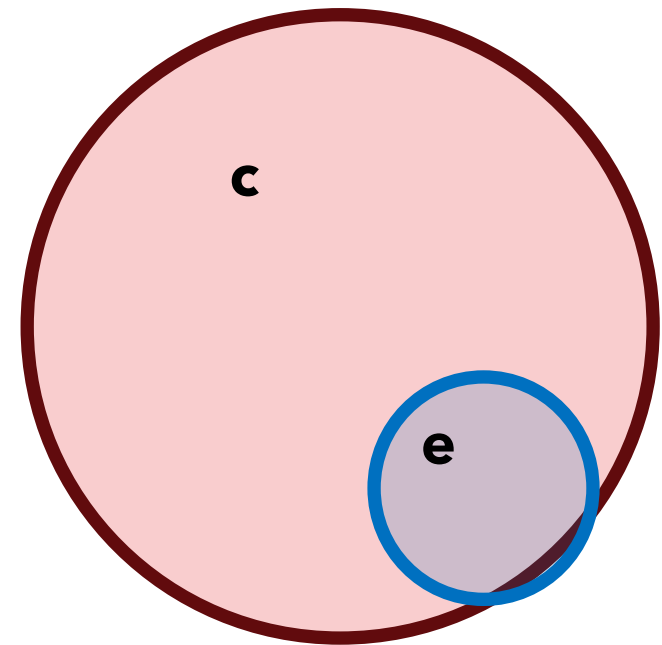


Illustration of “but-for” causal necessity: The specific effect (e) almost never occurs with specific cause (c)

Key Ideas (2): Contrast sets in cause and effect

When we say "A caused B" we really mean "A (rather than not-A) caused B (rather than not-B)"

"Jane got arrested because she stole the bicycle"

"Willie Sutton robbed banks because that's where the money is"

The question in law is: "But for the *tortious aspect* of the conduct would the *harm* have occurred?"

To get climate and causation right, we need to get the contrasts right!

*"Climate explains the French Revolution in 1789"

Key Ideas (3.1): "Harm within the scope of risk"

Behavior is **tortious** because it is **risky**

Risky means that the **type of action is at least partially sufficient for some type of harm:**

e.g., speeding in a car is risky because it is associated with accidents

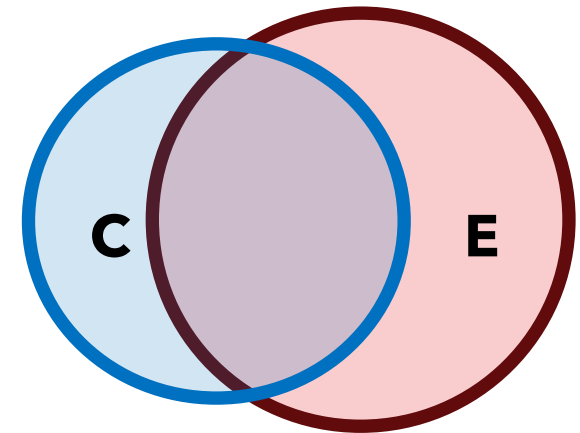


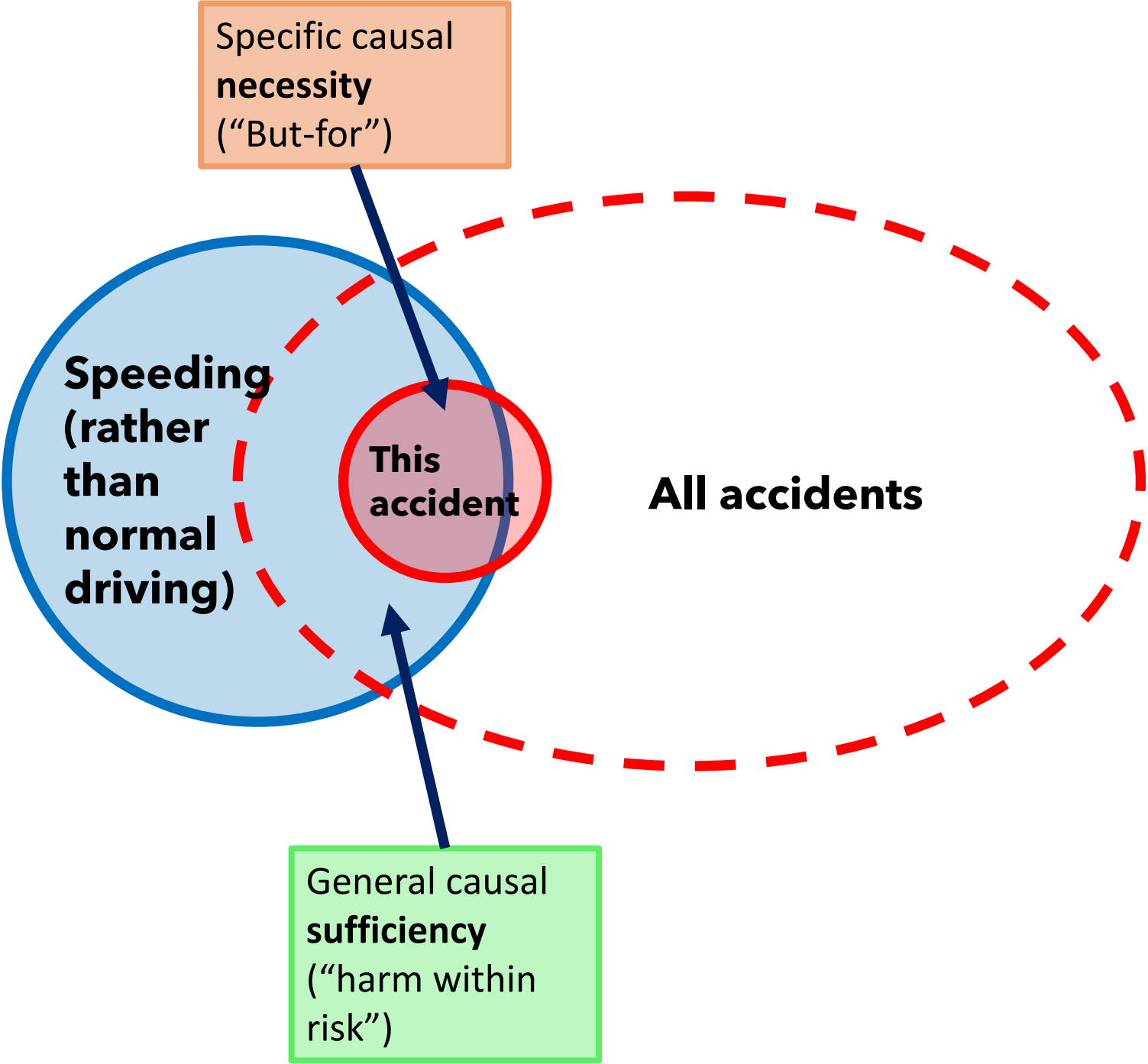
Illustration of general causal sufficiency: The type of cause (*C*) makes the type of effect (*E*) more likely, even without complete overlap.

Key Ideas (3.2): "Harm within the scope of risk"

Harm is within the "scope of risk" if it happens **for the same reason that some behavior is considered risky**: e.g., you're speeding and you can't control your car to avoid an accident



Credit: Unsplash.com



Did the El Niño cause the drought?

Climate Scientist 1: **No**

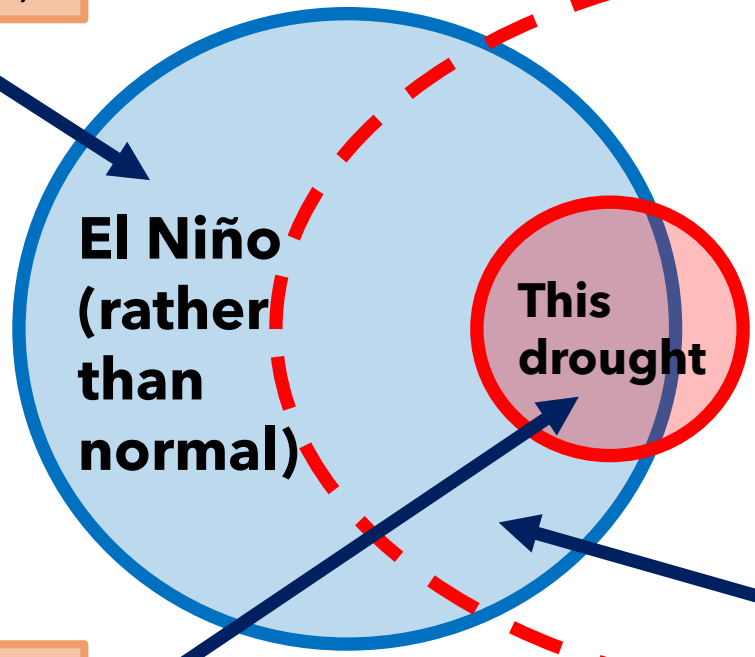
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Climate Scientist 2: **Yes**

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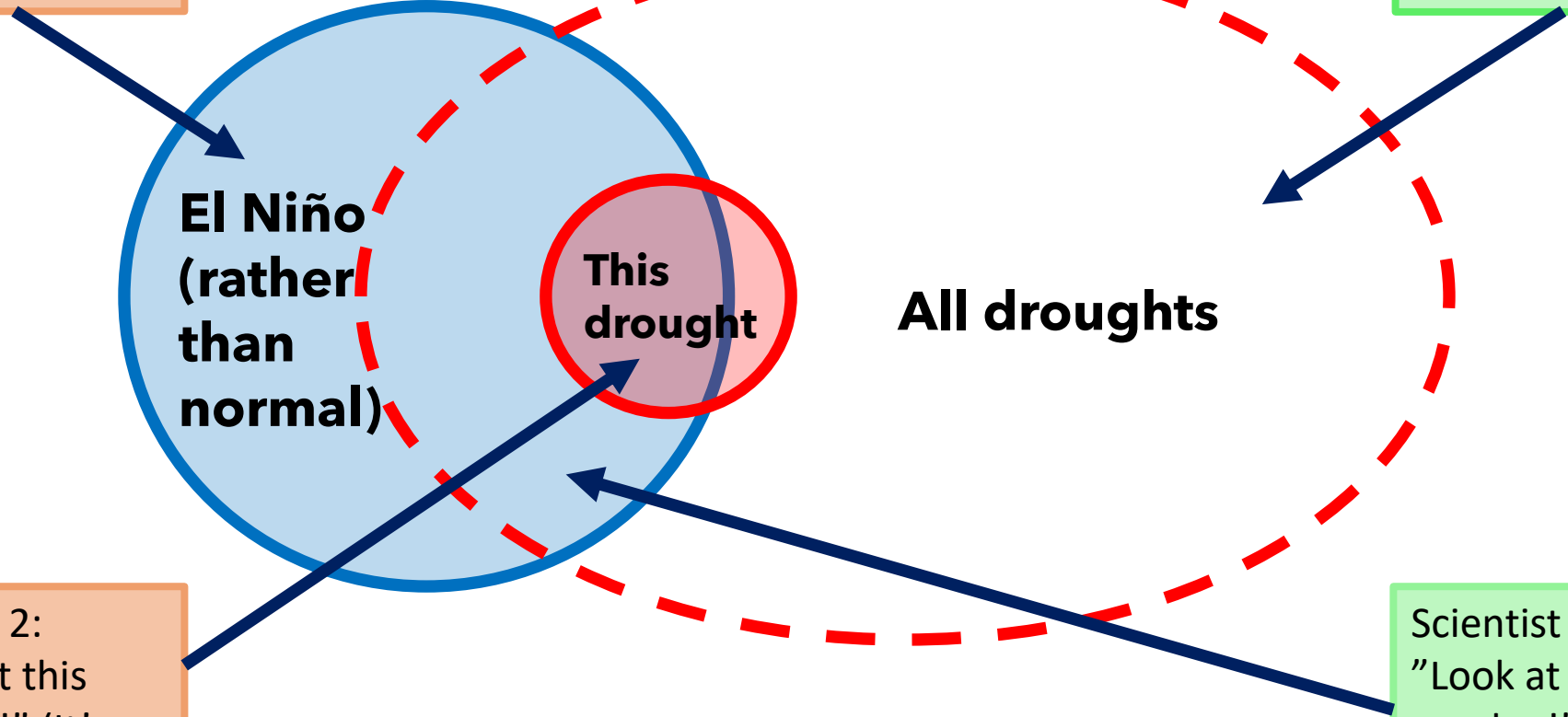
Scientist 1:
"Look at all this empty space!"
(Not **sufficient**)

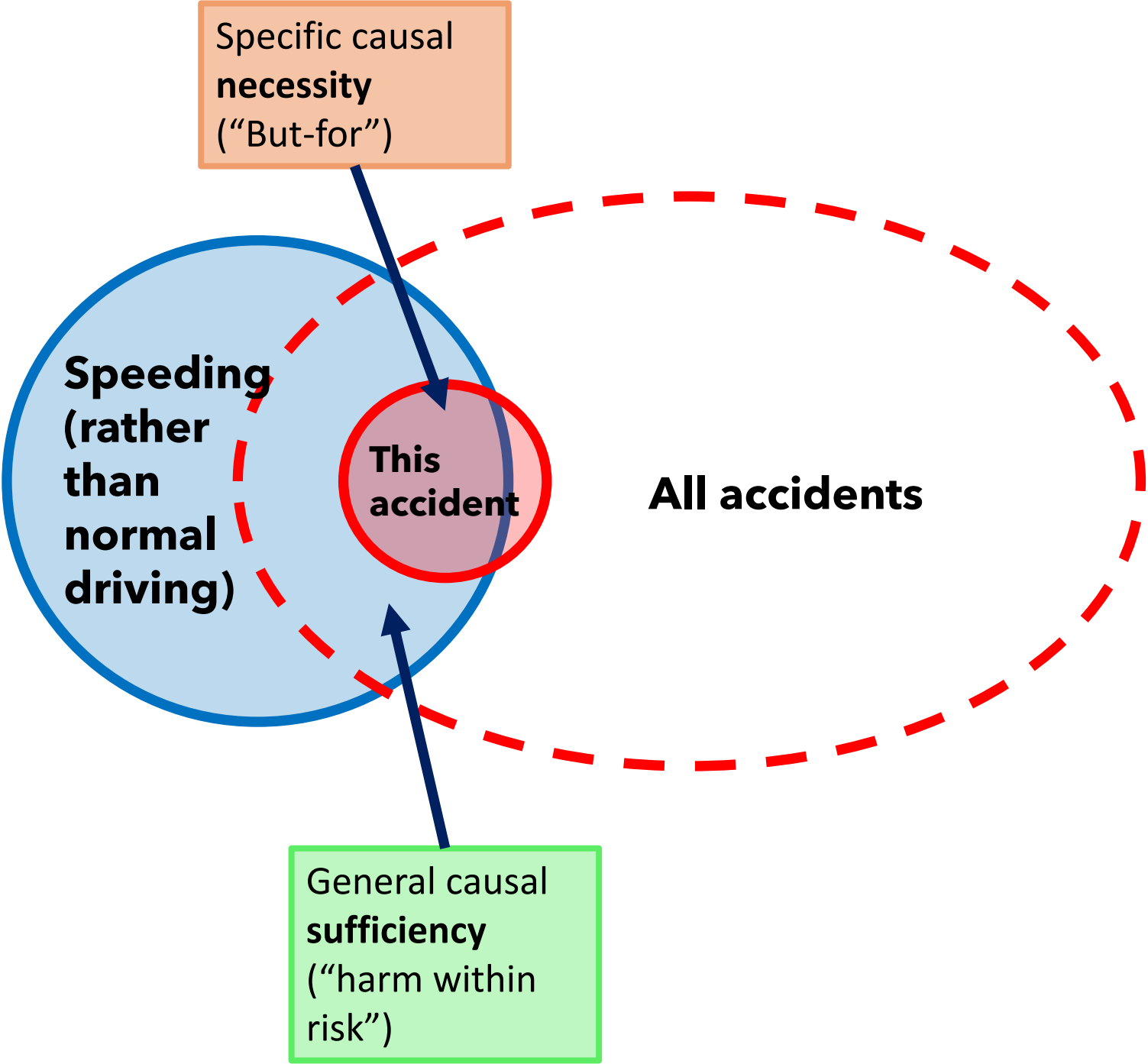
Scientist 1:
"Look at all this empty space!"
(Not **necessary**)



Scientist 2:
"Look at this overlap!" (It's still **necessary**)

Scientist 2:
"Look at this overlap!" (It's still **sufficient**)





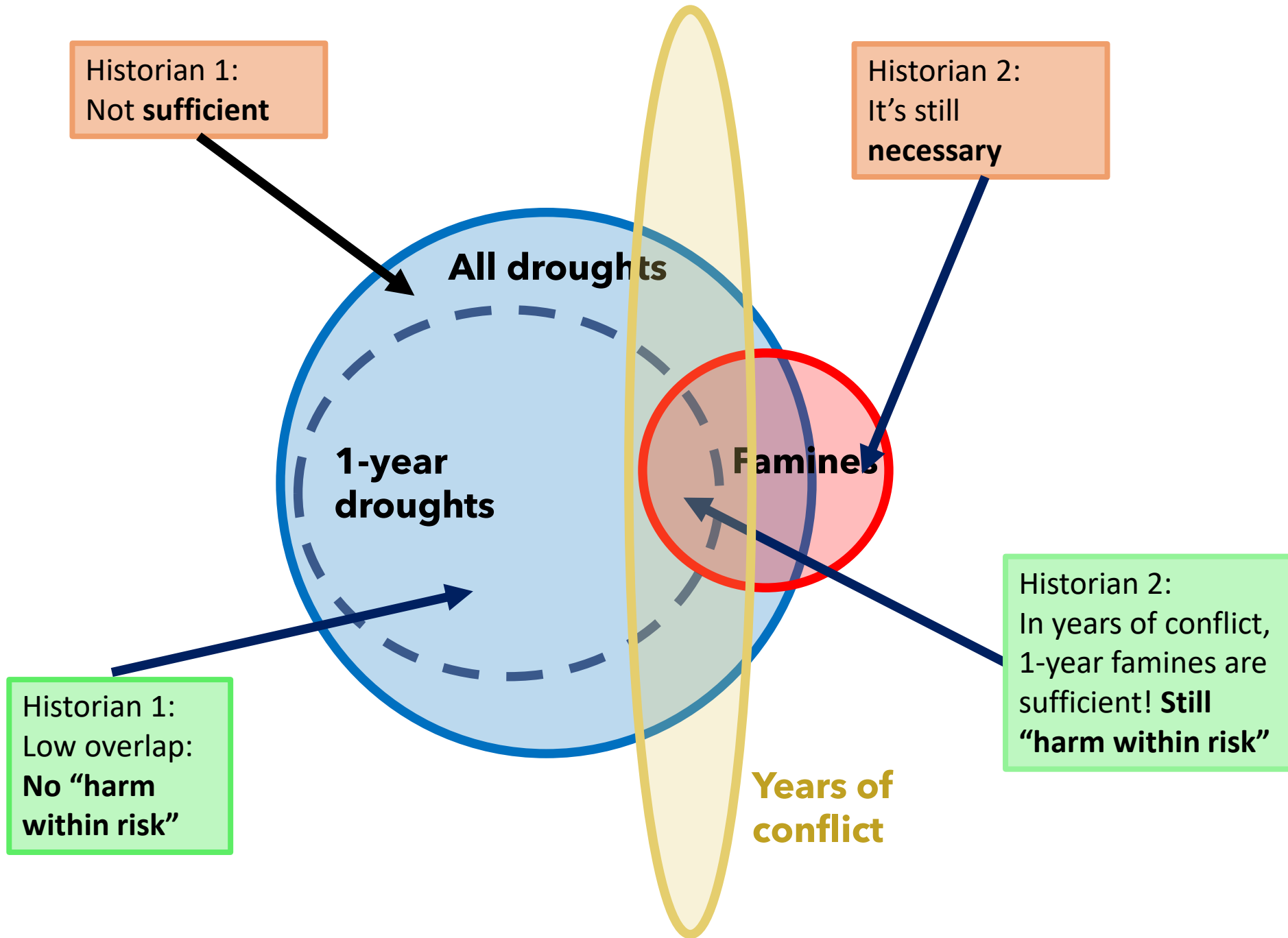
Did the drought cause the famine?

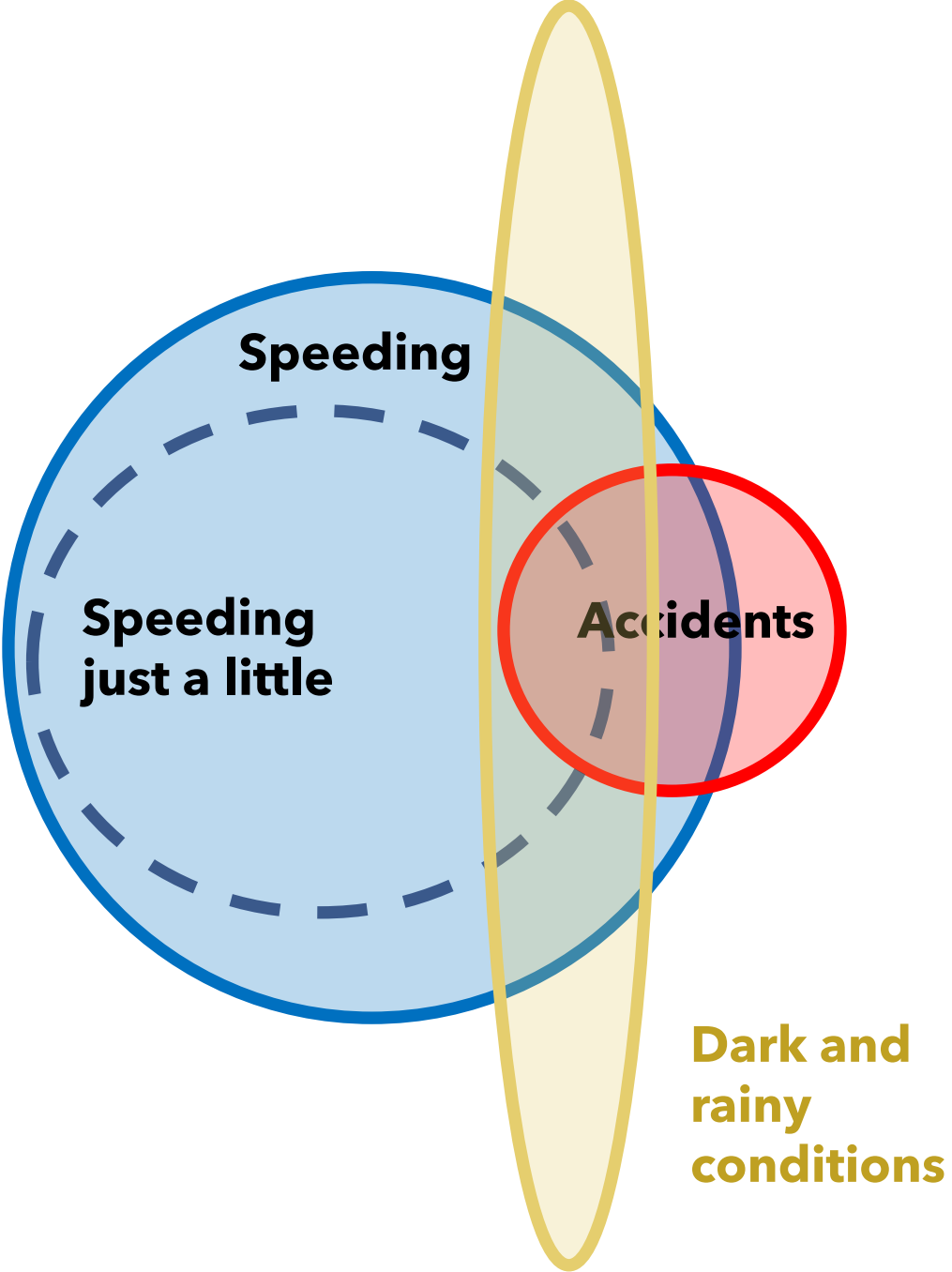
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How do we decide which to call "a cause" or "the cause" (not "a factor")?

In law: comparative responsibility

Several options

Option 1: Which was most *necessary and sufficient*?

❖ So is drought or conflict more sufficient for famine?

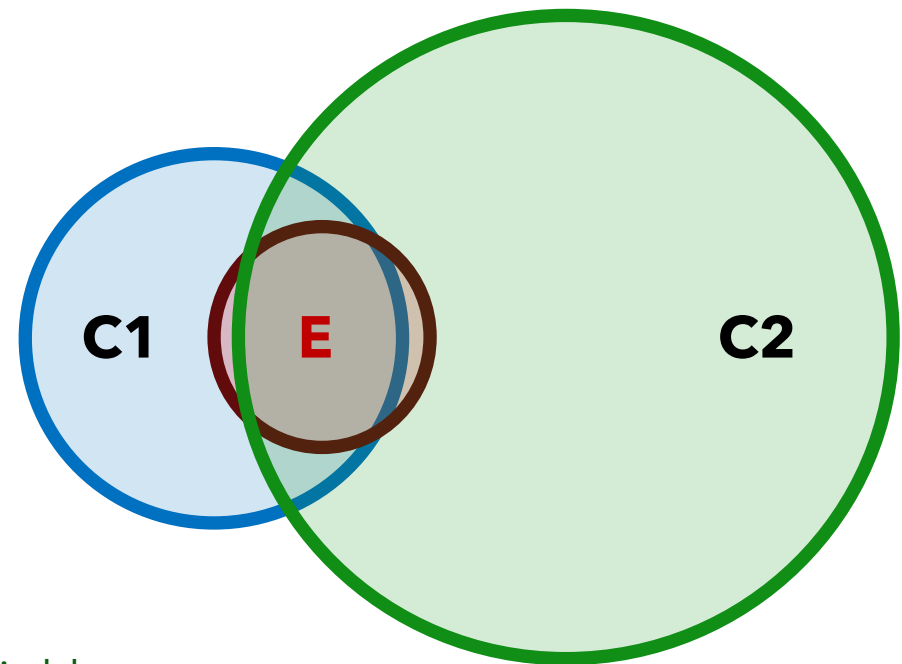


Illustration: Both causes C1 and C2 are highly necessary for effect E, but the closer overlap makes it more intuitive to call C1 "the cause" and C2 just "a factor"

Other options

Human action

Human agency

Morality

Tradition

❖ In short: normative considerations

From law to climate and causation: Five steps

*Was something about climate **really necessary in this case** for the impact?

Have we identified the right **contrast sets** about climate and impacts? (Is this about type of effect or just timing or location?)

Was the type of cause **generally sufficient** for the type of effect (“harm within risk”)?

Have we examined necessity and sufficiency **in the right contexts**?

Is climate the **right cause to focus on**?

Conclusions

Climate and causation is complicated—but not impossible

Not just opinion! (We can argue, but we need to be clear what we're arguing about.)

And not the same as “attribution” as climatologists are using it

- ❖ Identifying causation requires (1) analysis, (2) empirical data, (3) counterfactual imagination, (4) judgement

Thank you!

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