CAUSAL Reasoning in Program Evaluation

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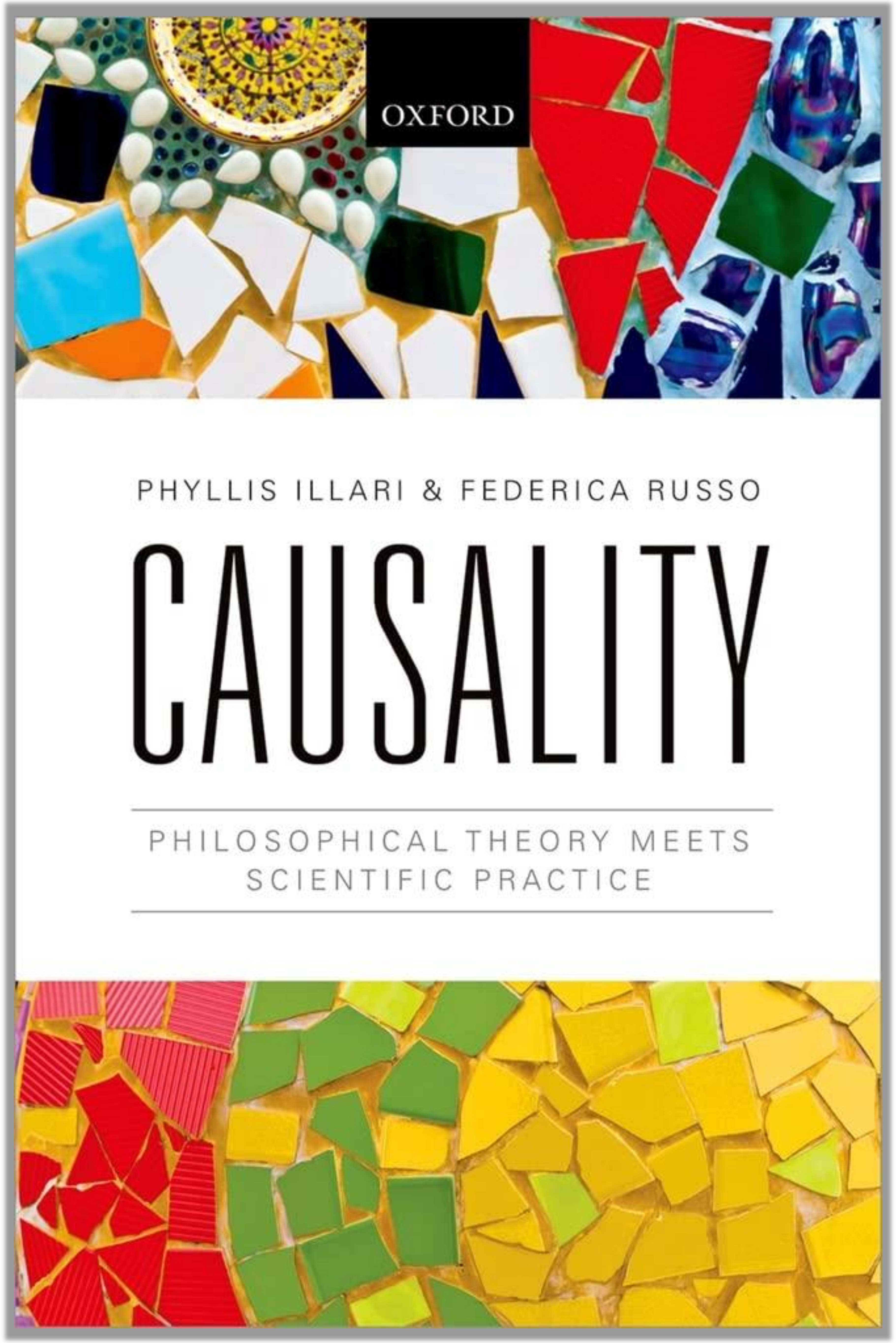

A mosaic is an assembly of tiny tiles, all different. The edges of the tiles don't always fit, but when carefully composed, positioned, and angled, they form to make an image.

Illari and Russo 2014, p. 258.

"

Causation is one word, but many things

Nancy Cartwright 2004

Cartwright, N. (2004). "Causation: One Word, Many Things." Philosophy of Science, 71(5), pp. 805–819.

How do we diagnose causal problems, evaluate causal claims, explain causal phenomena?

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Implications of the Changing Conversation About Causality for Evaluators

Emily Gates[1] and Lisa Dyson[2]

Abstract

Making causal claims is central to evaluation practice because we want to know the effects of a program, project, or policy. In the past decade, the conversation about establishing causal claims has become prominent (and problematic). In response to this changing conversation about causality, we argue that evaluators need to take up some new ways of thinking about and examining causal claims in their practices, including (1) being responsive to the situation and intervention, (2) building relevant and defensible causal arguments, (3) being literate in multiple ways of thinking about causality, (4) being familiar with a range of causal designs and methods, (5) layering theories to explain causality at multiple levels; and (6) justifying the causal approach taken to multiple audiences. Drawing on recent literature, we discuss why and how evaluators can take up each of these ideas in practice. We conclude with considerations for evaluator training and future research.

Keywords

causality, outcomes, impact evaluation, causal pluralism

Introduction

Evaluators routinely make causal claims about social and educational policies and programs. While evaluators may not use language of *cause* and *effect*, they use a wide range of terms that refer to the relationship between an *intervention* and the *changes brought about by the intervention* such as outcomes, impacts, consequences, results, and differences. Regardless of the term(s) used, most evaluators would agree that making causal claims is central to practicing evaluation.

Across a wide variety of settings from grassroots nonprofit organizations to university grant-funded programs to national policy initiatives, evaluators are increasingly facing pressure to make causal claims and to defend these claims. Recent international trends toward evidence-based policy making and results-oriented management have led to a surge in commissioning evaluations that investigate the causal relationships between interventions and their consequences. There are often

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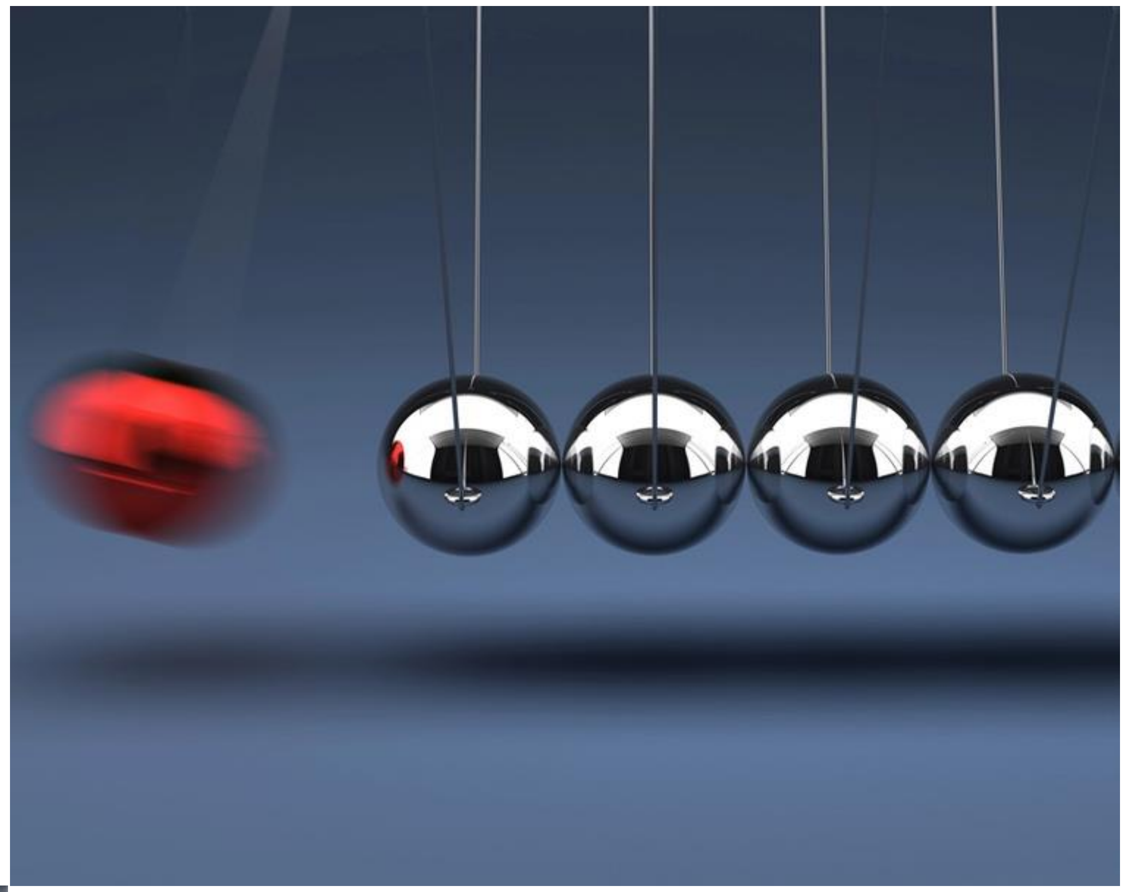
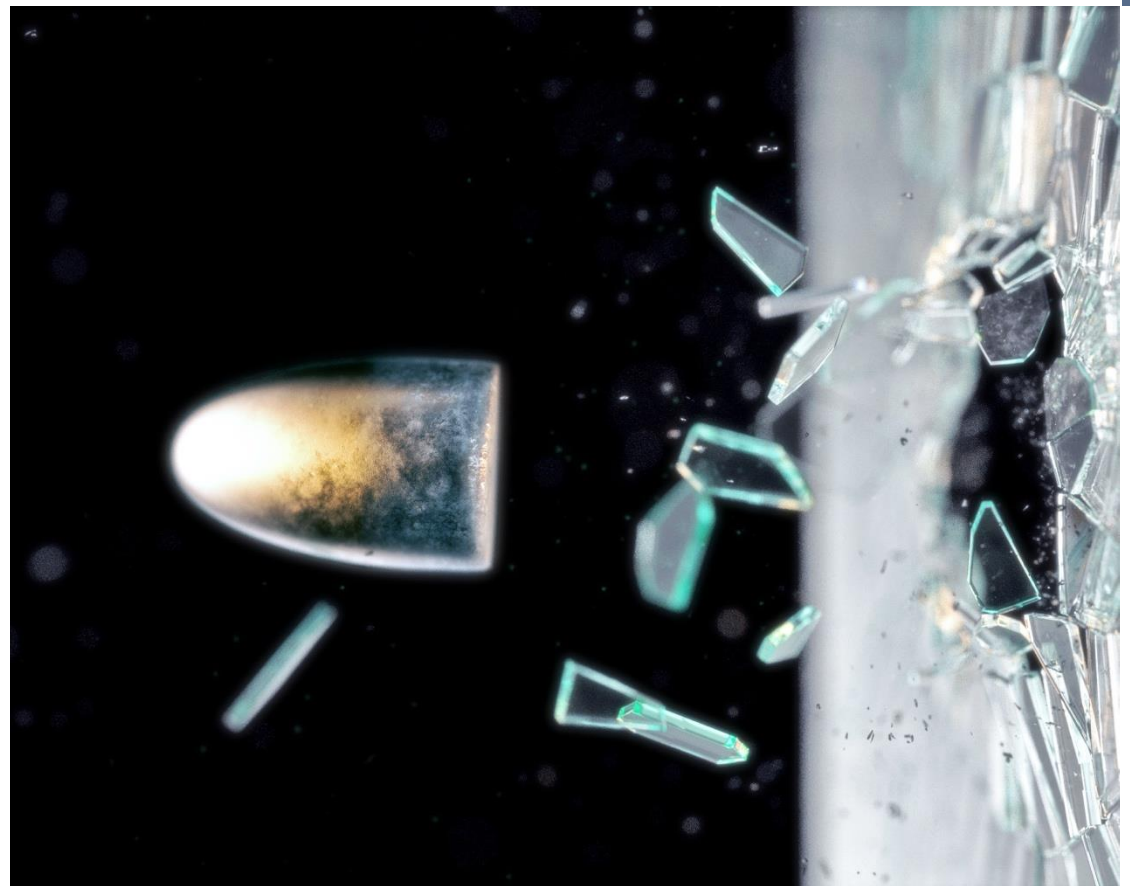
Overview



01

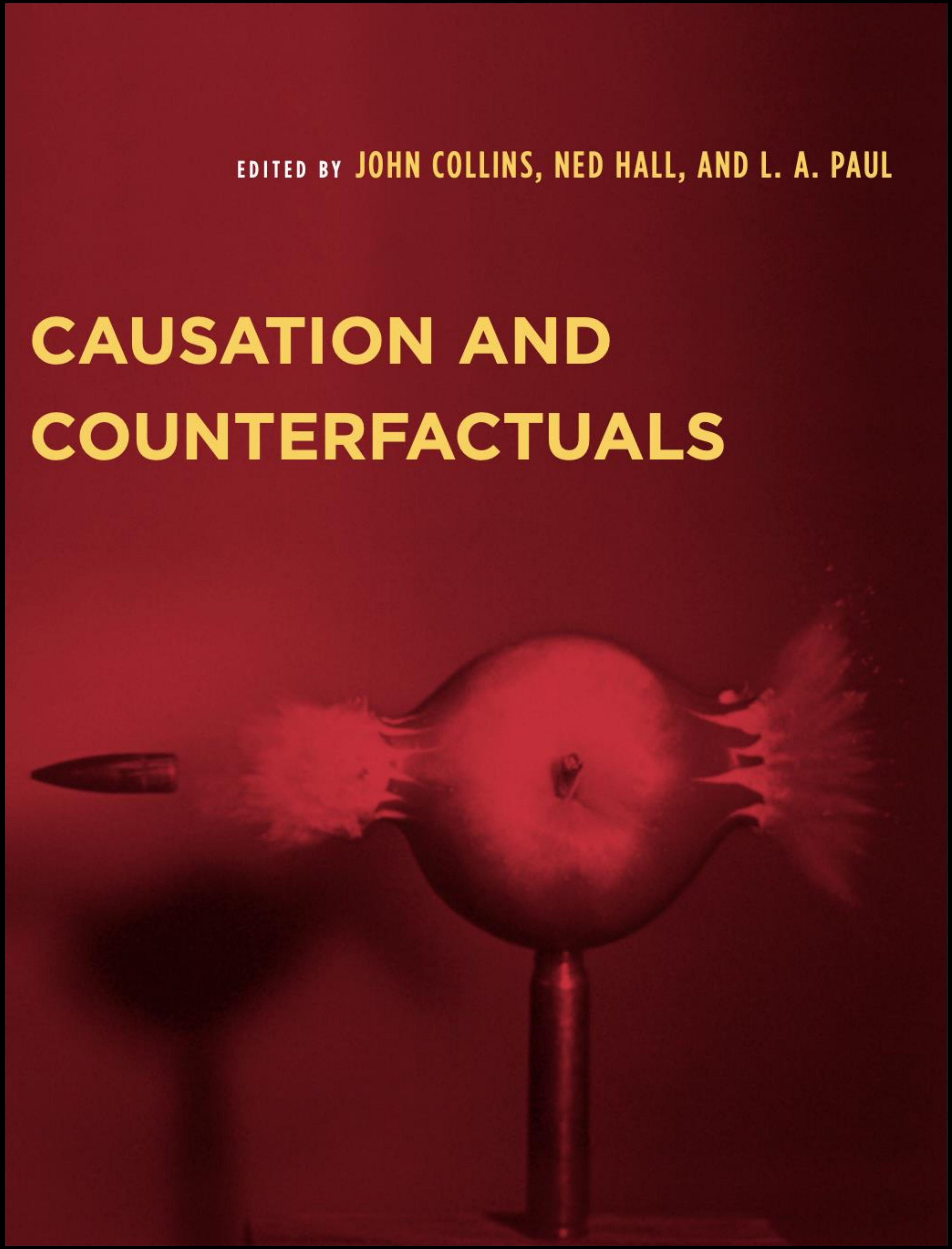
What are the different ways to think about causation?



02

How can different causal logics complement each other?

What is causation?



Two Concepts Causation

Dependence

Event y depends on event x

Production

Event x brings about event y

Hall, Ned. 2004. 'Two Concepts of Causation'. In Causation and Counterfactuals, edited by John Collins, Ned Hall, and L. A. Paul. The MIT Press.

Relations of Dependence

Regularity Theories

Probabilistic Theories

Counterfactual Theories

Relations of Production

Process Theories

Dispositional Theories

Conjunctural Theories

Relations of Dependence

Regularity Theories

Does Y regularly follow X?

If drivers who wear seatbelts survive crashes more often, we infer the seatbelt saves lives.

Descriptive statistics, longitudinal studies, correlation, time-series, simple regression

Relations of Dependence

Probabilistic Theories

Does X increase the likelihood of Y?

Wearing a seatbelt increases the likelihood of surviving a crash

Regression analysis (risk estimation), cohort studies, epidemiological designs, Bayesian modelling

Relations of Dependence

Counterfactual Theories

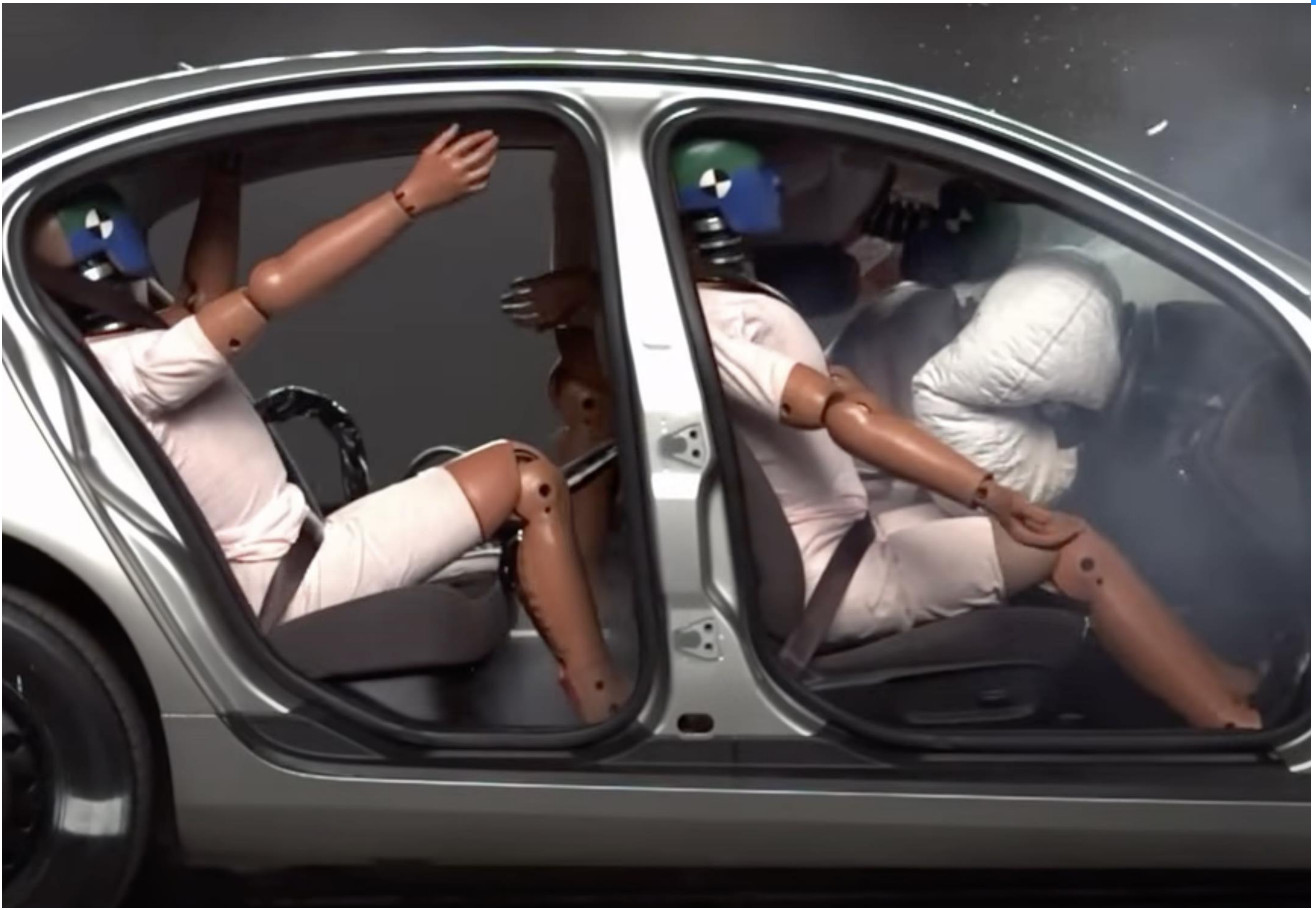
If X hadn't occurred, would Y still have happened?

If the seatbelt hadn't been worn, survival would *not* have occurred.

RCTs, natural experiments, DiD, synthetic controls, regression (potential outcomes)

Process Theories

Relations of Production



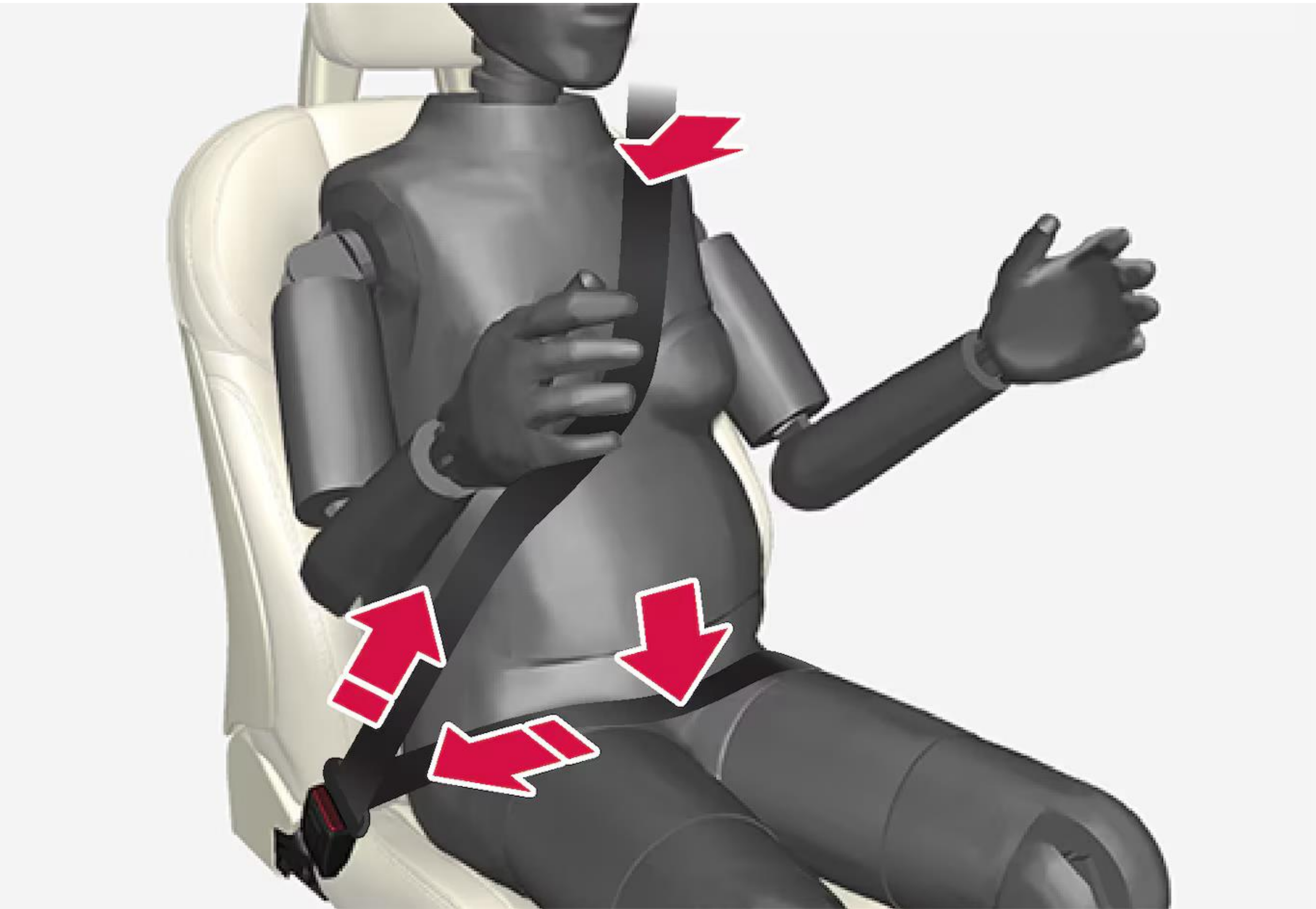
What sequence links X to Y?

Rapid deceleration → retractor locks → restraint → survival

Process tracing, causal process observations, event history

Dispositional Theories

Relations of Production



What power in X, when triggered, produces Y?

Under deceleration, seatbelt's tensile strength + three-point geometry distribute force across torso, preventing injury/death.

Retroduction, Realist CMOs, lab experiments, theory-driven evaluation.

Conjunctural Theories

Relations of Production

What set of conditions, which include X, are together sufficient for Y?

Seatbelt + airbags + safe design + speed limits + emergency response = survival

INUS analysis, QCA, contribution analysis, comparative case studies

Relations of Dependence

Regularity Theories

X causes Y if X is regularly followed by Y

Probabilistic Theories

X causes Y if X raises the probability of Y

Counterfactual Theories

X causes Y if, had X not been present, Y would not have occurred

Relations of Production

Process Theories

X causes Y if X initiates a sequence of events that culminates in Y

Dispositional Theories

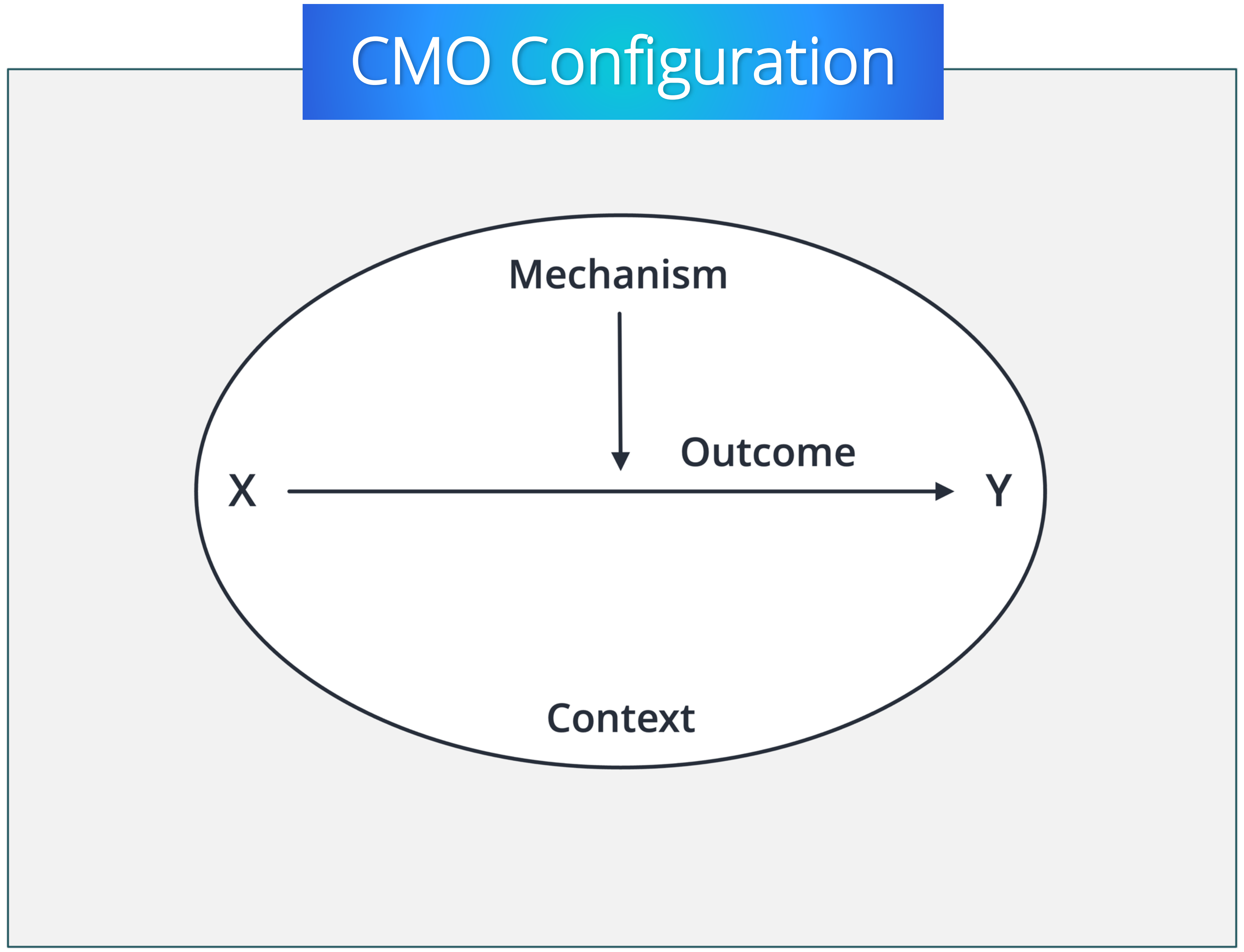
X causes Y if X possesses a power that, when triggered, produces Y

Conjunctural Theories

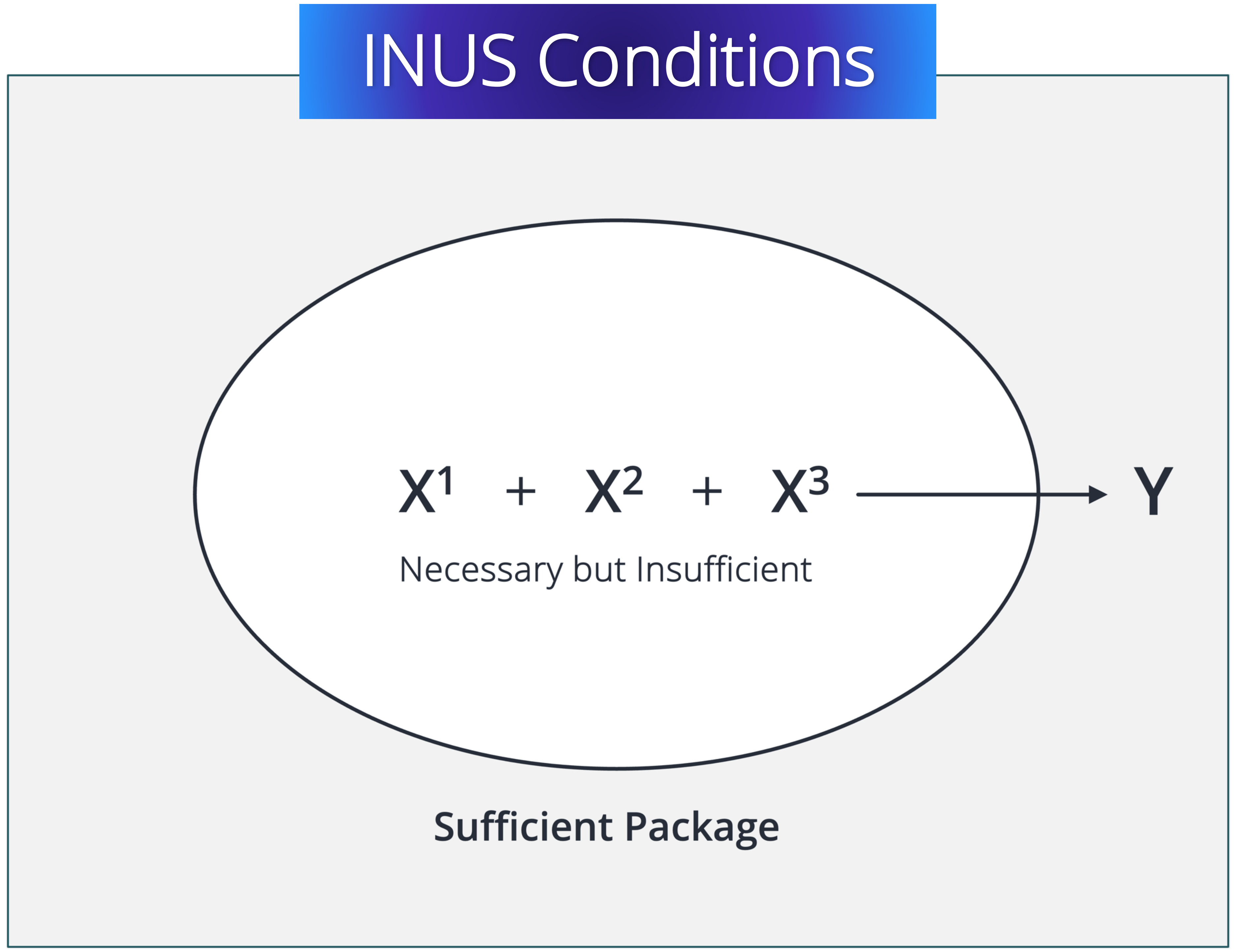
X causes Y if X is part of a set of conditions that, together, are sufficient for Y

Two Relations of Productive

Dispositional and Conjunctural Theories



Pawson, Ray, and Nick Tilley. 1997. Realistic Evaluation. Sage.



Mackie, John L. 1965. ‘Causes and Conditions’. American Philosophical Quarterly 2 (4): 245–64. JSTOR Arts & Sciences V Collection.

Context-Mechanism-Outcome Configuration

Context	Mechanism	Outcome
CCTV is installed in a high-crime area, is visible and well-publicised. Offenders believe footage is monitored and used to detect, investigate and prosecute crime.	Offenders perceive an increased risk of detection and punishment, triggering deterrence.	Crime decreases in the monitored area, but some crime may shift to less-monitored locations.

INUS Conditions

An Insufficient but Non-redundant part of an Unnecessary but Sufficient condition.

CCTV is not sufficient on its own to bring about changed behaviour.

But it can be a non-redundant part of a larger package of conditions.

Necessary Condition	Causal Role

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CCTV + Awareness + Credible Risk + Deterrable Offenders + No Alternatives	Sufficient but unnecessary. Together, these conditions can reduce crime, but other causal packages (e.g. increased patrols, community interventions) might still work.

When is a causal argument good enough?

THANK YOU

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