On Making Causal Claims A Review And Recommendations

Regression Analysis: A Constructive Critique identifies a wide variety of problems with regression analysis as it is commonly used and then provides a number of ways in which practice could be improved. Regression is most useful for data reduction, leading to relatively simple but rich and precise descriptions of patterns in a data set. The emphasis on description provides readers with an insightful rethinking from the ground up of what regression analysis can do, so that readers can better match regression analysis with useful empirical questions and improved policy-related research. "An interesting and lively text, rich in practical wisdom, written for people who do empirical work in the social sciences and their graduate students." --David A. Freedman, Professor of Statistics, University of California, Berkeley

The Oxford Handbook of Causal Reasoning offers a state-of-the-art review of one of our most central cognitive competencies, which has for a long time been neglected in cognitive psychology. This Handbook provides introductions of competing theories of causal reasoning, and discusses its role in various cognitive functions and domains.

Many of the concepts and terminology surrounding modern causal inference can be quite intimidating to the novice. Judea Pearl presents a book ideal for beginners in statistics, providing a comprehensive introduction to the field of causality. Examples from classical statistics are presented throughout to demonstrate the need for causality in resolving decision-making dilemmas posed by data. Causal methods are also compared to traditional statistical methods, whilst questions are provided at the end of each section to aid student learning.

A Turing Award-winning computer scientist and statistician shows how understanding causality has revolutionized science and will revolutionize artificial intelligence "Correlation is not causation." This mantra, chanted by scientists for more than a century, has led to a virtual prohibition on causal talk. Today, that taboo is dead. The causal revolution, instigated by Judea Pearl and his colleagues, has cut through a century of confusion and established causality -- the study of cause and effect -- on a firm scientific basis. His work explains how we can know easy things, like whether it was rain or a sprinkler that made a sidewalk wet; and how to answer hard questions, like whether a drug cured an illness. Pearl's work enables us to know not just whether one thing causes another: it lets us explore the world that is and the worlds that could have been. It shows us the essence of human thought and key to artificial intelligence. Anyone who wants to understand either needs The Book of Why.

Did mandatory busing programs in the 1970s increase the school achievement of disadvantaged minority youth? Does obtaining a college degree increase an individual's labor market earnings? Did the use of the butterfly ballot in some Florida counties in the 2000 presidential election cost Al Gore votes? If so, was the number of miscast votes sufficiently large to have altered the election outcome? At their core, these types of questions are simple cause-and-effect questions. Simple cause-and-effect questions are the motivation for much empirical work in the social sciences. This book presents a model and set of methods for causal effect estimation that social scientists can use to address causal questions such as these. The essential features of the counterfactual model of causality for observational data analysis are presented with examples from sociology, political science, and economics.

The book provides an accessible but comprehensive overview of methods for mediation and interaction. There has been considerable and rapid methodological development on mediation and moderation/interaction analysis within the causal-inference literature over the last ten years. Much of this material appears in a variety of specialized journals, and some of the papers are quite technical. There has also been considerable interest in these developments from empirical researchers in the social and biomedical sciences. However, much of the

material is not currently in a format that is accessible to them. The book closes these gaps by providing an accessible, comprehensive, book-length coverage of mediation. The book begins with a comprehensive introduction to mediation analysis, including chapters on concepts for mediation, regression-based methods, sensitivity analysis, time-to-event outcomes, methods for multiple mediators, methods for time-varying mediation and longitudinal data, and relations between mediation and other concepts involving intermediates such as surrogates, principal stratification, instrumental variables, and Mendelian randomization. The second part of the book concerns interaction or "moderation," including concepts for interaction, statistical interaction, confounding and interaction, mechanistic interaction, bias analysis for interaction, interaction in genetic studies, and power and sample-size calculation for interaction. The final part of the book provides comprehensive discussion about the relationships between mediation and interaction and unites these concepts within a single framework. This final part also provides an introduction to spillover effects or social interaction, concluding with a discussion of social-network analyses. The book is written to be accessible to anyone with a basic knowledge of statistics. Comprehensive appendices provide more technical details for the interested reader. Applied empirical examples from a variety of fields are given throughout. Software implementation in SAS, Stata, SPSS, and R is provided. The book should be accessible to students and researchers who have completed a first-year graduate sequence in quantitative methods in one of the social- or biomedical-sciences disciplines. The book will only presuppose familiarity with linear and logistic regression, and could potentially be used as an advanced undergraduate book as well.

"Making a difference' presents fifteen original essays on causation and counterfactuals by an international team of experts. Collectively, they represent the state of the art on these topics. The essays in this volume are inspired by the life and work of Peter Menzies, who made a difference in the lives of students, colleagues, and friends. Topics covered include: the semantics of counterfactuals, agency theories of causation, the context-sensitivity of causal claims, structural equation models, mechanisms, mental causation, causal exclusion argument, free will, and the consequence argument."--Publisher's website.

Causation is the main foundation upon which the possibility of science rests. Without causation, there would be no scientific understanding, explanation, prediction, nor application in new technologies. How we discover causal connections is no easy matter, however. Causation often lies hiddenfrom view and it is vital that we adopt the right methods for uncovering it. The choice of methods will inevitably reflect what one takes causation to be, making an accurate account of causation an even more pressing matter. This enquiry informs the correct norms for an empirical study of the world. In Causation in Science and the Methods of Scientific Discovery, Rani Lill Anjum and Stephen Mumford propose nine new norms of scientific discovery. A number of existing methodological and philosophical orthodoxies are challenged as they argue that progress in science is being held back by an overlysimplistic philosophy of causation.

The quasi-federal European Union stands out as the major exception in the thinly institutionalized world of international politics. Something has led Europeans—and only Europeans—beyond the nation-state to a fundamentally new political architecture. Craig Parsons argues in A Certain Idea of Europe that this "something" was a particular set of ideas generated in Western Europe after the Second World War. In Parsons's view, today's European Union reflects the ideological (and perhaps visionary) project of an elite minority. His book traces the progressive victory of this project in France, where the battle over European institutions erupted most divisively. Drawing on archival research and extensive interviews with French policymakers, the author carefully traces a fifty-year conflict between radically different European plans. Only through aggressive leadership did the advocates of a supranational "community" Europe succeed at building the EU and binding their opponents within it. Parsons

puts the causal impact of ideas, and their binding effects through institutions, at the center of his book. In so doing he presents a strong logic of "social construction"—a sharp departure from other accounts of EU history that downplay the role of ideas and ideology.

The past few decades have seen an explosion of research on causal reasoning in philosophy, computer science, and statistics, as well as descriptive work in psychology. In Causation with a Human Face, James Woodward integrates these lines of research and argues for an understanding of how each can inform the other: normative ideas can suggest interesting experiments, while descriptive results can suggest important normative concepts. Woodward's overall framework builds on the interventionist treatment of causation that he developed in Making Things Happen. Normative ideas discussed include proposals about the role of invariant or stable relationships in successful causal reasoning and the notion of proportionality. He argues that these normative ideas are reflected in the causal judgments that people actually make as a descriptive matter. Woodward also discusses the common philosophical practice-particularly salient in philosophical accounts of causation--of appealing to "intuitions" or "judgments about cases" in support of philosophical theses. He explores how, properly understood, such appeals are not different in principle from appeals to results from empirical research, and demonstrates how they may serve as a useful source of information about causal cognition.

David A. Freedman presents a definitive synthesis of his approach to statistical modeling and causal inference in the social sciences.

This textbook introduces the scientific study of politics, supplying students with the basic tools to be critical consumers and producers of scholarly research.

Woodward's long awaited book is an attempt to construct a comprehensive account of causation explanation that applies to a wide variety of causal and explanatory claims in different areas of science and everyday life. The book engages some of the relevant literature from other disciplines, as Woodward weaves together examples, counterexamples, criticisms, defenses, objections, and replies into a convincing defense of the core of his theory, which is that we can analyze causation by appeal to the notion of manipulation.

Human beings are active agents who can think. To understand how thought serves action requires understanding how people conceive of the relation between cause and effect, between action and outcome. In cognitive terms, how do people construct and reason with the causal models we use to represent our world? A revolution is occurring in how statisticians, philosophers, and computer scientists answer this question. Those fields have ushered in new insights about causal models by thinking about how to represent causal structure mathematically, in a framework that uses graphs and probability theory to develop what are called causal Bayesian networks. The framework starts with the idea that the purpose of causal structure is to understand and predict the effects of intervention. How does intervening on one thing affect other things? This is not a question merely about probability (or logic), but about action. The framework offers a new understanding of mind: Thought is about the effects of intervention and cognition is thus intimately tied to actions that take place either in the actual physical world or in imagination, in counterfactual worlds. The book offers a conceptual introduction to the key mathematical ideas, presenting them in a non-technical way, focusing on the intuitions rather than the theorems. It tries to show why the ideas are important to understanding how people explain things and why thinking not only about the world as it is but the world as it could be is so central to human action. The book reviews the role of causality, causal models, and intervention in the basic human cognitive functions: decision making, reasoning, judgment, categorization, inductive inference, language, and learning. In short, the book offers a discussion about how people think, talk, learn, and explain things in causal terms, in terms of action and manipulation.

Causal reasoning is one of our most central cognitive competencies, enabling us to adapt to

our world. Causal knowledge allows us to predict future events, or diagnose the causes of observed facts. We plan actions and solve problems using knowledge about cause-effect relations. Although causal reasoning is a component of most of our cognitive functions, it has been neglected in cognitive psychology for many decades. The Oxford Handbook of Causal Reasoning offers a state-of-the-art review of the growing field, and its contribution to the world of cognitive science. The Handbook begins with an introduction of competing theories of causal learning and reasoning. In the next section, it presents research about basic cognitive functions involved in causal cognition, such as perception, categorization, argumentation, decision-making, and induction. The following section examines research on domains that embody causal relations, including intuitive physics, legal and moral reasoning, psychopathology, language, social cognition, and the roles of space and time. The final section presents research from neighboring fields that study developmental, phylogenetic, and cultural differences in causal cognition. The chapters, each written by renowned researchers in their field, fill in the gaps of many cognitive psychology textbooks, emphasizing the crucial role of causal structures in our everyday lives. This Handbook is an essential read for students and researchers of the cognitive sciences, including cognitive, developmental, social, comparative, and cross-cultural psychology; philosophy; methodology; statistics; artificial intelligence; and machine learning.

In this comprehensive reconstruction of causal case study methods, Derek Beach, Rasmus Brun Pedersen, and their coauthors delineate the ontological and epistemological differences among these methods, offer suggestions for determining the appropriate methods for a given research project, and explain the step-by-step application of selected methods. Causal Case Study Methods begins with the cohesive, logical foundations for small-n comparative methods, congruence methods, and process tracing, then delineate the distinctive types of causal relationships for which each method is appropriate. Next, the authors provide practical instruction for deploying each of the methods individually and in combination. They walk the researcher through each stage of the research process, starting with issues of concept formation and the formulation of causal claims in ways that are compatible with case-based research. They then develop guidelines for using Bayesian logic as a set of practical questions for translating empirical data into evidence that may or may not confirm causal inferences. Widely acclaimed instructors, the authors draw upon their extensive experience at the graduate level in university classrooms, summer and winter school courses, and professional workshops, around the globe.

The Sage Handbook of Research on Classroom Assessment provides scholars, professors, graduate students, and other researchers and policy makers in the organizations, agencies, testing companies, and school districts with a comprehensive source of research on all aspects of K-12 classroom assessment. The handbook emphasizes theory, conceptual frameworks, and all varieties of research (quantitative, qualitative, mixed methods) to provide an in-depth understanding of the knowledge base in each area of classroom assessment and how to conduct inquiry in the area. It presents classroom assessment research to convey, in depth, the state of knowledge and understanding that is represented by the research, with particular emphasis on how classroom assessment practices affect student achieventment and teacher behavior. Editor James H. McMillan and five Associate Editors bring the best thinking and analysis from leading classroom assessment researchers on the nature of the research, making significant contributions to this prominent and hotly debated topic in education.

Metaethics occupies a central place in analytical philosophy, and the last forty years has seen an upsurge of interest in questions about the nature and practice of morality. This collection presents original and ground-breaking research on metaethical issues from some of the very best of a new generation of philosophers working in this field.

An accessible, contemporary introduction to the methods for determining cause and effect in

the social sciences "Causation versus correlation has been the basis of arguments--economic and otherwise--since the beginning of time. Causal Inference: The Mixtape uses legit real-world examples that I found genuinely thought-provoking. It's rare that a book prompts readers to expand their outlook; this one did for me."--Marvin Young (Young MC) Causal inference encompasses the tools that allow social scientists to determine what causes what. In a messy world, causal inference is what helps establish the causes and effects of the actions being studied--for example, the impact (or lack thereof) of increases in the minimum wage on employment, the effects of early childhood education on incarceration later in life, or the influence on economic growth of introducing malaria nets in developing regions. Scott Cunningham introduces students and practitioners to the methods necessary to arrive at meaningful answers to the questions of causation, using a range of modeling techniques and coding instructions for both the R and the Stata programming languages.

Much has been written on the role of causal notions and causal reasoning in the so-called 'special sciences' and in common sense. But does causal reasoning also play a role in physics? Mathias Frisch argues that, contrary to what influential philosophical arguments purport to show, the answer is yes. Time-asymmetric causal structures are as integral a part of the representational toolkit of physics as a theory's dynamical equations. Frisch develops his argument partly through a critique of anti-causal arguments and partly through a detailed examination of actual examples of causal notions in physics, including causal principles invoked in linear response theory and in representations of radiation phenomena. Offering a new perspective on the nature of scientific theories and causal reasoning, this book will be of interest to professional philosophers, graduate students, and anyone interested in the role of causal thinking in science.

The Effect: An Introduction to Research Design and Causality is about research design, specifically concerning research that uses observational data to make a causal inference. It is separated into two halves, each with different approaches to that subject. The first half goes through the concepts of causality, with very little in the way of estimation. It introduces the concept of identification thoroughly and clearly and discusses it as a process of trying to isolate variation that has a causal interpretation. Subjects include heavy emphasis on data-generating processes and causal diagrams. Concepts are demonstrated with a heavy emphasis on graphical intuition and the question of what we do to data. When we “add a control variable” what does that actually do? Key Features: • Extensive code examples in R, Stata, and Python • Chapters on overlooked topics in econometrics classes: heterogeneous treatment effects, simulation and power analysis, new cutting-edge methods, and uncomfortable ignored assumptions • An easy-to-read conversational tone • Up-to-date coverage of methods with fast-moving literatures like difference-in-differences

Communication research is evolving and changing in a world of online journals, open-access, and new ways of obtaining data and conducting experiments via the Internet. Although there are generic encyclopedias describing basic social science research methodologies in general, until now there has been no comprehensive A-to-Z reference work exploring methods specific to communication and media studies. Our entries, authored by key figures in the field, focus on special considerations when applied specifically to communication research, accompanied by engaging examples from the literature of communication, journalism, and media studies. Entries cover every step of the research process, from the creative development of research topics and questions to literature reviews, selection of best methods (whether quantitative, qualitative, or mixed) for analyzing research results and publishing research findings, whether in traditional media or via new media outlets. In addition to expected entries covering the basics of theories and methods traditionally used in communication research, other entries discuss important trends influencing the future of that research, including contemporary practical issues students will face in communication professions, the influences of globalization

on research, use of new recording technologies in fieldwork, and the challenges and opportunities related to studying online multi-media environments. Email, texting, cellphone video, and blogging are shown not only as topics of research but also as means of collecting and analyzing data. Still other entries delve into considerations of accountability, copyright, confidentiality, data ownership and security, privacy, and other aspects of conducting an ethical research program. Features: 652 signed entries are contained in an authoritative work spanning four volumes available in choice of electronic or print formats. Although organized A-to-Z, front matter includes a Reader's Guide grouping entries thematically to help students interested in a specific aspect of communication research to more easily locate directly related entries. Back matter includes a Chronology of the development of the field of communication research; a Resource Guide to classic books, journals, and associations; a Glossary introducing the terminology of the field; and a detailed Index. Entries conclude with References/Further Readings and Cross-References to related entries to guide students further in their research journeys. The Index, Reader's Guide themes, and Cross-References combine to provide robust search-and-browse in the e-version.

Written by one of the preeminent researchers in the field, this book provides a comprehensive exposition of modern analysis of causation. It shows how causality has grown from a nebulous concept into a mathematical theory with significant applications in the fields of statistics, artificial intelligence, economics, philosophy, cognitive science, and the health and social sciences. Judea Pearl presents and unifies the probabilistic, manipulative, counterfactual, and structural approaches to causation and devises simple mathematical tools for studying the relationships between causal connections and statistical associations. Cited in more than 2,100 scientific publications, it continues to liberate scientists from the traditional molds of statistical thinking. In this revised edition, Judea Pearl elucidates thorny issues, answers readers' questions, and offers a panoramic view of recent advances in this field of research. Causality will be of interest to students and professionals in a wide variety of fields. Dr Judea Pearl has received the 2011 Rumelhart Prize for his leading research in Artificial Intelligence (AI) and systems from The Cognitive Science Society.

This book constitutes the refereed proceedings of the 10th International Conference on the Theory and Application of Diagrams, Diagrams 2018, held in Edinburgh, UK, in June 2018. The 26 revised full papers and 28 short papers presented together with 32 posters were carefully reviewed and selected from 124 submissions. The papers are organized in the following topical sections: generating and drawing Euler diagrams; diagrams in mathematics; diagram design, principles and classification; reasoning with diagrams; Euler and Venn diagrams; empirical studies and cognition; Peirce and existential graphs; and logic and diagrams.

Evidence and explanatory mechanism are central to scientific practices. Using such information could also inform decisions about issues in which science can play some role, from policy issues like climate change to personal issues like vaccination. While research suggests that people tend to focus on non-science considerations when making science-related decisions, there is also evidence that people can reason very productively with evidence and mechanism. This study examines how the goals participants pursue when reading a science report influences how they attend to information about causal mechanism and evidence. Two hundred and seventeen high school students were asked either to evaluate the truth of a scientific claim, to make a personal decision based on the claim, or to make a social policy decision based on the claim using an online task-based survey. All three groups of participants attended to evidence and mechanism, but

participants with different goals requested different types of information and were influenced by evidence and mechanism for different reasons. The findings suggest that goals influence how participants use evidence and mechanism.
The application of causal inference methods is growing exponentially in fields that deal with observational data. Written by pioneers in the field, this practical book presents an authoritative yet accessible overview of the methods and applications of causal inference. With a wide range of detailed, worked examples using real epidemiologic data as well as software for replicating the analyses, the text provides a thorough introduction to the basics of the theory for non-time-varying treatments and the generalization to complex longitudinal data.
The United States has long recognized and honored the service and sacrifices of its military and veterans. Veterans who have been injured by their service (whether their injury appears during service or afterwards) are owed appropriate health care and disability compensation. For some medical conditions that develop after military service, the scientific information needed to connect the health conditions to the circumstances of service may be incomplete. When information is incomplete, Congress or the Department of Veterans Affairs (VA) may need to make a "presumption" of service connection so that a group of veterans can be appropriately compensated. The missing information may be about the specific exposures of the veterans, or there may be incomplete scientific evidence as to whether an exposure during service causes the health condition of concern. For example, when the exposures of military personnel in Vietnam to Agent Orange could not be clearly documented, a presumption was established that all those who set foot on Vietnam soil were exposed to Agent Orange. The Institute of Medicine (IOM) Committee was charged with reviewing and describing how presumptions have been made in the past and, if needed, to make recommendations for an improved scientific framework that could be used in the future for determining if a presumption should be made. The Committee was asked to consider and describe the processes of all participants in the current presumptive disability decision-making process for veterans. The Committee was not asked to offer an opinion about past presumptive decisions or to suggest specific future presumptions. The Committee heard from a range of groups that figure into this decision-making process, including past and present staffers from Congress, the VA, the IOM, veterans service organizations, and individual veterans. The Department of Defense (DoD) briefed the Committee about its current activities and plans to better track the exposures and health conditions of military personnel. The Committee further documented the current process by developing case studies around exposures and health conditions for which presumptions had been made. Improving the Presumptive Disability Decision-Making Process for Veterans explains recommendations made by the committee general methods by which scientists, as well as government and other organizations, evaluate scientific evidence in order to determine if a specific exposure causes a health condition.

Approximately one in six top economic research papers draws an explicitly causal conclusion. But what do economists mean when they conclude that A 'causes' B? Does 'cause' say that we can influence B by intervening on A, or is it only a label for the correlation of variables? Do quantitative analyses of observational data followed by such causal inferences constitute sufficient grounds for guiding economic policymaking? The Philosophy of Causality in Economics addresses these questions by analyzing the meaning of causal claims made by economists and the philosophical presuppositions underlying the research methods used. The book considers five key causal approaches: the regularity approach, probabilistic theories, counterfactual theories, mechanisms, and interventions and manipulability. Each chapter opens with a summary of literature on the relevant approach and discusses its reception among economists. The text details case studies, and goes on to examine papers which have adopted the approach in order to highlight the methods of causal inference used in contemporary economics. It analyzes the meaning of the causal claim put forward, and finally reconstructs the philosophical presuppositions accepted implicitly by economists. The strengths and limitations of each method of causal inference are also considered in the context of using the results as evidence for policymaking. This book is essential reading to those interested in literature on the philosophy of economics, as well as the philosophy of causality and economic methodology in general.

This book is open access under a CC BY license. This book is the first to develop explicit methods for evaluating evidence of mechanisms in the field of medicine. It explains why it can be important to make this evidence explicit, and describes how to take such evidence into account in the evidence appraisal process. In addition, it develops procedures for seeking evidence of mechanisms, for evaluating evidence of mechanisms, and for combining this evaluation with evidence of association in order to yield an overall assessment of effectiveness. Evidence-based medicine seeks to achieve improved health outcomes by making evidence explicit and by developing explicit methods for evaluating it. To date, evidence-based medicine has largely focused on evidence of association produced by clinical studies. As such, it has tended to overlook evidence of pathophysiological mechanisms and evidence of the mechanisms of action of interventions. The book offers a useful guide for all those whose work involves evaluating evidence in the health sciences, including those who need to determine the effectiveness of health interventions and those who need to ascertain the effects of environmental exposures.

The most comprehensive account available of causal asymmetry, written by a pre-eminent philosopher of science.

The authors are proud sponsors of the 2020 SAGE Keith Roberts Teaching Innovations Award—enabling graduate students and early career faculty to attend the annual ASA pre-conference teaching and learning workshop. Congratulations to Daniel F. Chambliss, winner of the ASA Distinguished Contribution to

Teaching Prize for 2018. The new Sixth Edition of Making Sense of the Social World continues to be an unusually accessible and student-friendly introduction to the variety of social research methods, guiding undergraduate readers to understand research in their roles as consumers and novice producers of social science. Known for its concise, casual, and clear writing, its balanced treatment of quantitative and qualitative approaches, and its integrated approach to the fundamentals, the text has much to offer both novice researchers and more advanced students alike. The authors use a wide variety of examples from formal studies and everyday experiences to illustrate important principles and techniques. A Complete Teaching & Learning Package SAGE coursepacks FREE! Easily import our quality instructor and student resource content into your school's learning management system (LMS) and save time. Learn more. SAGE edge FREE online resources for students that make learning easier. See how your students benefit. .

What constitutes a causal explanation, and must an explanation be causal? What warrants a causal inference, as opposed to a descriptive regularity? What techniques are available to detect when causal effects are present, and when can these techniques be used to identify the relative importance of these effects? What complications do the interactions of individuals create for these techniques? When can mixed methods of analysis be used to deepen causal accounts? Must causal claims include generative mechanisms, and how effective are empirical methods designed to discover them? The Handbook of Causal Analysis for Social Research tackles these questions with nineteen chapters from leading scholars in sociology, statistics, public health, computer science, and human development.

A concise and self-contained introduction to causal inference, increasingly important in data science and machine learning. The mathematization of causality is a relatively recent development, and has become increasingly important in data science and machine learning. This book offers a self-contained and concise introduction to causal models and how to learn them from data. After explaining the need for causal models and discussing some of the principles underlying causal inference, the book teaches readers how to use causal models: how to compute intervention distributions, how to infer causal models from observational and interventional data, and how causal ideas could be exploited for classical machine learning problems. All of these topics are discussed first in terms of two variables and then in the more general multivariate case. The bivariate case turns out to be a particularly hard problem for causal learning because there are no conditional independences as used by classical methods for solving multivariate cases. The authors consider analyzing statistical asymmetries between cause and effect to be highly instructive, and they report on their decade of intensive research into this problem. The book is accessible to readers with a background in machine learning or statistics, and can be used in graduate courses or as a reference for researchers. The text includes code

snippets that can be copied and pasted, exercises, and an appendix with a summary of the most important technical concepts.

A new approach for defining causality and such related notions as degree of responsibility, degrees of blame, and causal explanation. Causality plays a central role in the way people structure the world; we constantly seek causal explanations for our observations. But what does it even mean that an event C "actually caused" event E? The problem of defining actual causation goes beyond mere philosophical speculation. For example, in many legal arguments, it is precisely what needs to be established in order to determine responsibility. The philosophy literature has been struggling with the problem of defining causality since Hume. In this book, Joseph Halpern explores actual causality, and such related notions as degree of responsibility, degree of blame, and causal explanation. The goal is to arrive at a definition of causality that matches our natural language usage and is helpful, for example, to a jury deciding a legal case, a programmer looking for the line of code that cause some software to fail, or an economist trying to determine whether austerity caused a subsequent depression. Halpern applies and expands an approach to causality that he and Judea Pearl developed, based on structural equations. He carefully formulates a definition of causality, and building on this, defines degree of responsibility, degree of blame, and causal explanation. He concludes by discussing how these ideas can be applied to such practical problems as accountability and program verification. Technical details are generally confined to the final section of each chapter and can be skipped by non-mathematical readers.

Corey W. Dyck presents a new account of Kant's criticism of the rational investigation of the soul in his monumental Critique of Pure Reason, in light of its eighteenth-century German context. When characterizing the rational psychology that is Kant's target in the Paralogisms of Pure Reason chapter of the Critique commentators typically only refer to an approach to, and an account of, the soul found principally in the thought of Descartes and Leibniz. But Dyck argues that to do so is to overlook the distinctive rational psychology developed by Christian Wolff, which emphasized the empirical foundation of any rational cognition of the soul, and which was widely influential among eighteenth-century German philosophers, including Kant. In this book, Dyck reveals how the received conception of the aim and results of Kant's Paralogisms must be revised in light of a proper understanding of the rational psychology that is the most proximate target of Kant's attack. In particular, he contends that Kant's criticism hinges upon exposing the illusory basis of the rational psychologist's claims inasmuch as he falls prey to the appearance of the soul as being given in inner experience. Moreover, Dyck demonstrates that significant light can be shed on Kant's discussion of the soul's substantiality, simplicity, personality, and existence by considering the Paralogisms in this historical context.

This Element provides an accessible introduction to the contemporary philosophy of causation. It introduces the reader to central concepts and distinctions (type vs

token causation, probabilistic vs deterministic causation, difference-making, interventions, overdetermination, pre-emption) and to key tools (structural equations, graphs, probabilistic causal models) drawn upon in the contemporary debate. The aim is to fuel the reader's interest in causation, and to equip them with the resources to contribute to the debate themselves. The discussion is historically informed and outward-looking. 'Historically informed' in that concise accounts of key historical contributions to the understanding of causation set the stage for an examination of the latest research. 'Outward looking' in that illustrations are provided of how the philosophy of causation relates to issues in the sciences, law, and elsewhere. The aim is to show why the study of causation is of critical importance, besides being fascinating in its own right.

Explores the relationship between correlation and causation using a series of novel statistical methods.

In Making Things Happen, James Woodward develops a new and ambitious comprehensive theory of causation and explanation that draws on literature from a variety of disciplines and which applies to a wide variety of claims in science and everyday life. His theory is a manipulationist account, proposing that causal and explanatory relationships are relationships that are potentially exploitable for purposes of manipulation and control. This account has its roots in the commonsense idea that causes are means for bringing about effects; but it also draws on a long tradition of work in experimental design, econometrics, and statistics. Woodward shows how these ideas may be generalized to other areas of science from the social scientific and biomedical contexts for which they were originally designed. He also provides philosophical foundations for the manipulationist approach, drawing out its implications, comparing it with alternative approaches, and defending it from common criticisms. In doing so, he shows how the manipulationist account both illuminates important features of successful causal explanation in the natural and social sciences, and avoids the counterexamples and difficulties that infect alternative approaches, from the deductive-nomological model onwards. Making Things Happen will interest philosophers working in the philosophy of science, the philosophy of social science, and metaphysics, and as well as anyone interested in causation, explanation, and scientific methodology.

An innovative and accessible textbook on multimethod and case-study research Multimethod research has become indispensable to doing social science, and is essential to anyone who conducts large-scale research projects in political science, sociology, education, comparative law, or business. This authoritative and accessible book offers the first truly comprehensive approach to multimethod and case-study research, and is particularly aimed at students of qualitative methods in the social sciences. Walking step-by-step through these cutting-edge tools and techniques, Gary Goertz introduces a new integrated approach that unites three corners of a powerful research triad—causal mechanisms, cross-case causal inference, and within-case causal inference. He explains how the

investigation of causal mechanisms and the making of within-case causal inference are the central goals of multimethod and case study research, and provides a logic for connecting case studies and causal mechanism analysis with cross-case analysis, whether they are statistical analyses, experiments, or QCA. In addition, Goertz analyzes how one can generalize using case studies, as well as systematically test game-theoretic and other models using multiple case studies. Provides a fully integrated approach to multimethod and case-study research An essential resource for students and researchers in political science, sociology, education, law, and business Covers constraint causal mechanism, game theory and case studies, QCA, and the use of case studies to systematically test and generalize theories An ideal textbook for a first-year graduate course in methods or research design