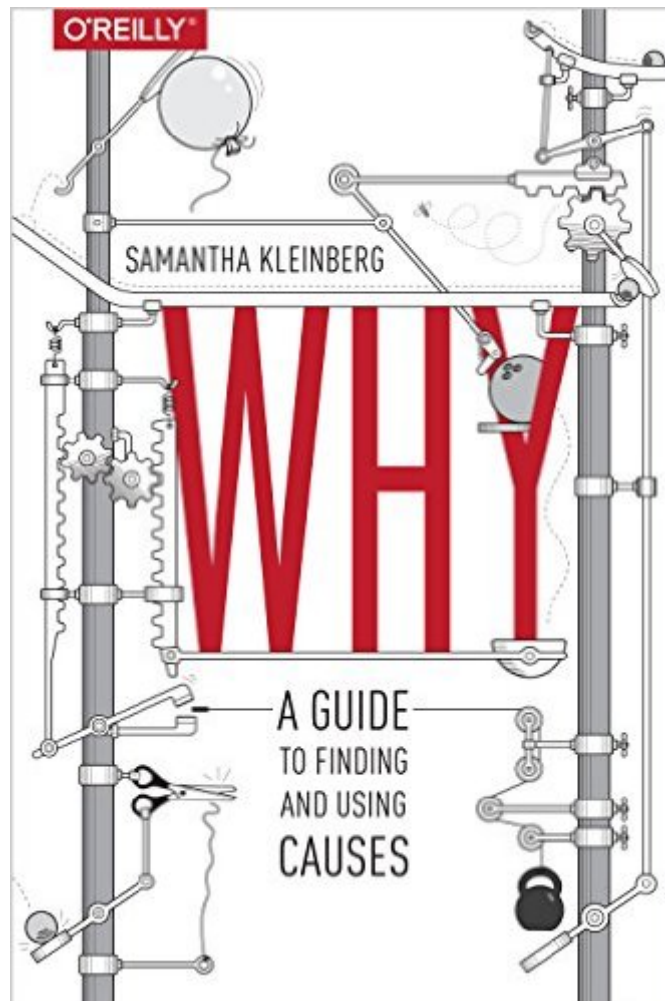


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# Why: A Guide To Finding And Using Causes



## Synopsis

Can drinking coffee help people live longer? What makes a stock's price go up? Why did you get the flu? Causal questions like these arise on a regular basis, but most people likely have not thought deeply about how to answer them. This book helps you think about causality in a structured way: What is a cause, what are causes good for, and what is compelling evidence of causality? Author Samantha Kleinberg shows you how to develop a set of tools for thinking more critically about causes. You'll learn how to question claims, identify causes, make decisions based on causal information, and verify causes through further tests. Whether it's figuring out what data you need, or understanding that the way you collect and prepare data affects the conclusions you can draw from it, *Why* will help you sharpen your causal inference skills.

## Book Information

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## Customer Reviews

How can we figure out why something happened? What is a cause? Philosophers have been thinking about this for years, and in many ways we haven't gotten beyond Aristotle and Hume in defining and discovering causes. If someone takes a slow-acting poison, then gets into a car whose brakes have been tampered with, and crashes into a wall and dies, did the poison kill him or was it the defective brakes? Do ice cream vendors cause warm weather? Did the one-child law in China cause women to have far more male babies than female babies, or is there some other explanation for the surplus of boys in Chinese elementary schools? Samantha Kleinberg has produced a fascinating book on causes that goes far beyond the usual cognitive bias and

correlation-is-not-causation material. She demonstrates how to tease out causes from masses of data, and describes experiments that can help verify or disprove causation, and talks about how to move from causality to decision-making. All of the techniques are imperfect, leaving plenty of room for human judgment. The book is dense and not meant to be entertaining - though it is well-written and enjoyable. Kleinberg acknowledges that the problem of defining causality has not been solved. She advocates for experimental AND observational studies, and for many methods of overcoming or limiting bias in determining and applying causation. And she is careful to point out the limits of causality in determining policy. Big data can throw up many patterns; it takes common sense and knowledge of the domain to see which ones can even be considered as causality. But it takes political and ethical will to understand what should be done with the patterns that are found. Kleinberg covers all this, which makes her book valuable beyond the technical material discussed in it.

The areas in which people must make important decisions (for business or living a good life), and they generally have less than optimal decision making capability are especially important in modern life. Daniel Kahneman won a Nobel Prize and authored "Thinking, Fast and Slow" one of the most important science books of the 2010's in talking about reasoning under uncertainty an area where most people have notoriously inaccurate fast judgement. Samantha Kleinberg, a Professor of Computer Science at Stevens Institute of Technology has written another important book about reasoning about the causes and relationships of things and events. This is another important area where people lack good judgement and need to make important decisions. For example, if you've heard that married men live longer than their unmarried cohorts, you might conclude as many women's magazines have suggested that marriage leads to a longer lifespan for men. But, you might if you had the benefit of better reasoning skills concluded that healthier, wealthier and more attractive men both had a greater lifespan and might be more attractive as marriage prospects. Dr. Kleinberg covers reasoning about causality and causation in a wide ranging essay covering topics including philosophy, economics, statistics, psychology and experimental design and writes clearly with a textual and graphical summary employing little mathematics. My only slight recommendation for future editions of this important book would be: to include a chapter giving a flowchart or framework for approaching decision and analysis problems in the real world (a flow chart for reasoning about causes), and greater reference to current tools for machine learning and their effects on our analysis methods. I highly recommend this important book on reasoning about "why?", and "what effects what?".--Ira Laefsky MS Engineering MBA Human Computer Interaction

Researcher and retired from the Consulting Staff of Arthur D. Little Inc. and Digital Equipment Corporation

As part of their support for user groups, O'Reilly sent me a free copy of *Why: A Guide to Finding and Using Causes* by Samantha Kleinberg to review. Kleinberg is an Assistant Professor of Computer Science, so I was interested to see what she had to say about finding causes. It probably wouldn't be the first book I chose if I was browsing, but I'm always interested in learning new things. What I liked about this book was the use of written examples and illustrations. The first chapter opens with the story of Sally Clark. A tragic miscarriage of justice that resulted in Clark serving 3 years in prison for the murder of her babies. One of the significant pieces of evidence that was used to convict Clark was the suggestion that the probability of two babies dying of SIDS was 1 in 73 million. This is wrong, because the witness (a medical expert) didn't understand statistics and probability. The expert witness believed Clark was the cause of death the two babies. The Clark story isn't the only one told. I'm glad for the generous sprinkling of those examples without which it would be pretty dry going. It is very helpful to bring things back to something you can relate to. A warning, this is a pretty in-depth book. I can't say I found it an easy read, but there's plenty of detail there. Before reading this book I guess I assumed that finding the cause for something was a pretty straight forward. Turns out the correct method is *it depends*. Trying to identify the real cause of an event is not always easy. Kleinberg takes us on a journey to better understand ways (and there are more than one) of finding causes: Beginnings (concepts), Psychology (how do we learn about causes), Correlation (correlation and causation aren't the same thing), Time, Observation (watching to learn), Computation (automating the process), Experimentation (experiments and research), Explanation (this caused that), Action (making decisions). The writer comes from the Computer Science field but she writes in a generally accessible (if a little bit academic) way. There are plenty of references (the notes and bibliography take up a not insignificant amount of the book). I noticed a lot of examples were medically-related, so if you work in the medical field, then I think you would get a lot out of it too.

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