

Chapter 9. The issue of multiple causation

Likan Zhan

Beijing Language and Culture University

2021-05-18

<https://likan.info>

zhanlikan@blcu.edu.cn

Table of Contents

1. The Issue of Multiple Causation
2. The Concept of Interaction
3. The Temptation of the Single-Cause Explanation

Table of Contents

1. The Issue of Multiple Causation
2. The Concept of Interaction
3. The Temptation of the Single-Cause Explanation

The Issue of Multiple Causation

The Issue of Multiple Causation

- Any particular behavior is caused not by one variable but by a large number of different variables.

The Issue of Multiple Causation

- Any particular behavior is caused not by one variable but by a large number of different variables.
- To conclude that there is a significant causal connection between variable A and behavior B does not mean that variable A is the only cause of behavior B.

The Issue of Multiple Causation

- Any particular behavior is caused not by one variable but by a large number of different variables.
- To conclude that there is a significant causal connection between variable A and behavior B does not mean that variable A is the only cause of behavior B.
- But often people forget that behavior is multiply determined. They seem to want to find the so-called magic bullet—the one cause of the behavioral outcome that interests them.

The Issue of Multiple Causation

- Any particular behavior is caused not by one variable but by a large number of different variables.
- To conclude that there is a significant causal connection between variable A and behavior B does not mean that variable A is the only cause of behavior B.
- But often people forget that behavior is multiply determined. They seem to want to find the so-called magic bullet—the one cause of the behavioral outcome that interests them.
- Like so many of the other principles discussed in this book, it is important to put the idea of multiple causes in perspective.

The Issue of Multiple Causation

The Issue of Multiple Causation

- On the one hand, this idea warns us not to overinterpret a single causal connection. The world is complicated, and the determinants of behavior are many and complex.

The Issue of Multiple Causation

- On the one hand, this idea warns us not to overinterpret a single causal connection. The world is complicated, and the determinants of behavior are many and complex.
- Just because we have demonstrated a cause of behavior does not mean that we have uncovered the only cause or even the most important cause.

The Issue of Multiple Causation

- On the one hand, this idea warns us not to overinterpret a single causal connection. The world is complicated, and the determinants of behavior are many and complex.
- Just because we have demonstrated a cause of behavior does not mean that we have uncovered the only cause or even the most important cause.
- To provide a thorough explanation of a particular behavior, researchers must study the influence of many different variables and amalgamate the results of these studies to give a complete picture of all the causal connections.

The Issue of Multiple Causation

The Issue of Multiple Causation

- On the other hand, to say that a variable is only one of many determinants and that it explains only a small portion of the variability in a given behavior is not to say that the variable is unimportant.

The Issue of Multiple Causation

- On the other hand, to say that a variable is only one of many determinants and that it explains only a small portion of the variability in a given behavior is not to say that the variable is unimportant.
- If the behavior in question is of great importance, then knowing how to control only a small proportion of it can be extremely useful.

The Issue of Multiple Causation

The Issue of Multiple Causation

- There have been medical studies in which a treatment accounted for less than 1 percent of the variability in the outcome, yet the results were considered so startlingly positive that the study was terminated prematurely for ethical considerations—that is,

The Issue of Multiple Causation

- There have been medical studies in which a treatment accounted for less than 1 percent of the variability in the outcome, yet the results were considered so startlingly positive that the study was terminated prematurely for ethical considerations—that is,
- The outcome of the experiment was considered so strong that it was deemed unethical to withhold the treatment from the placebo group.

Table of Contents

1. The Issue of Multiple Causation
2. **The Concept of Interaction**
3. The Temptation of the Single-Cause Explanation

The Concept of Interaction

The Concept of Interaction

- The idea of multiple causation leads to an important concept that is often discussed at length in methodology texts, although we can only mention it here: A factor that influences behavior may have different effects depending on the presence or absence of other factors.

The Concept of Interaction

- The idea of multiple causation leads to an important concept that is often discussed at length in methodology texts, although we can only mention it here: A factor that influences behavior may have different effects depending on the presence or absence of other factors.
- This is called the concept of interaction: The magnitude of the effect that one variable has may depend on the level of another variable.

The Concept of Interaction

The Concept of Interaction

- The concept of multiple causes involves even more complexities than you might have thought at first.

The Concept of Interaction

- The concept of multiple causes involves even more complexities than you might have thought at first.
- Not only is it necessary to track down and measure the many factors that may influence the behavior in question, but it is also necessary to investigate how these factors operate together.

The Continuum of Causal Influence for Variables

The Continuum of Causal Influence for Variables

- Clinical psychologist Scott Lilienfeld (2006) discusses the continuum of causal influence for variables—from strong to weak.

The Continuum of Causal Influence for Variables

- Clinical psychologist Scott Lilienfeld (2006) discusses the continuum of causal influence for variables—from strong to weak.
- Only at the very strongest end of the continuum does a variable act in isolation.

The Continuum of Causal Influence for Variables

- Clinical psychologist Scott Lilienfeld (2006) discusses the continuum of causal influence for variables—from strong to weak.
- Only at the very strongest end of the continuum does a variable act in isolation.
- The strongest form of causal influence is one where a variable is necessary and sufficient for producing an effect on dependent variable.

The Continuum of Causal Influence for Variables

- Clinical psychologist Scott Lilienfeld (2006) discusses the continuum of causal influence for variables—from strong to weak.
- Only at the very strongest end of the continuum does a variable act in isolation.
- The strongest form of causal influence is one where a variable is necessary and sufficient for producing an effect on dependent variable.
- The variable must be present for the effect to occur (it is necessary) and when it is, by itself, it is sufficient to produce the effect.

The Continuum of Causal Influence for Variables

The Continuum of Causal Influence for Variables

- Weaker forms of causation, however, all involve the contextualization of a variable's effect by other variables.

The Continuum of Causal Influence for Variables

- Weaker forms of causation, however, all involve the contextualization of a variable's effect by other variables.
- A causal variable might be necessary (it must be there for the dependent variable to display an effect) but not sufficient (it depends on the presence of another variable for its effect).

The Continuum of Causal Influence for Variables

- Weaker forms of causation, however, all involve the contextualization of a variable's effect by other variables.
- A causal variable might be necessary (it must be there for the dependent variable to display an effect) but not sufficient (it depends on the presence of another variable for its effect).
- Finally, a weak causal variable might be neither necessary nor sufficient—its presence just increases the overall statistical probability of the effect.

Table of Contents

1. The Issue of Multiple Causation
2. The Concept of Interaction
3. The Temptation of the Single-Cause Explanation

No magic bullet

No magic bullet

- It seems that the basic idea that complex events in the world are multiply determined should be an easy one to grasp.

No magic bullet

- It seems that the basic idea that complex events in the world are multiply determined should be an easy one to grasp.
- In fact, the concept is easy to grasp and to apply when the issues are not controversial.

No magic bullet

- It seems that the basic idea that complex events in the world are multiply determined should be an easy one to grasp.
- In fact, the concept is easy to grasp and to apply when the issues are not controversial.
- However, when our old nemesis, preexisting bias, rears its head, people have a tendency to ignore the principle of multiple causation.

No magic bullet

No magic bullet

- people will sometimes acknowledge the existence of multiple causes if asked directly about multiple causes; but seldom will they spontaneously offer many different causes as an explanation for something they care about.

No magic bullet

- people will sometimes acknowledge the existence of multiple causes if asked directly about multiple causes; but seldom will they spontaneously offer many different causes as an explanation for something they care about.
- Most often, people adopt a “zero sum” attitude toward potential causes—that all causes compete with one another and that emphasizing one necessarily reduces the emphasis on another. This “zero sum” view of causes is incorrect.

No magic bullet

No magic bullet

- Once the multiple causes of a complex phenomenon are found, if the phenomenon is a problem, this necessarily means that the solution to the problem will require multiple interventions.

Summary

Summary

- When thinking about the causes of behavior, think in terms of multiple causes.

Summary

- When thinking about the causes of behavior, think in terms of multiple causes.
- Do not fall into the trap of thinking that a particular behavior must have a single cause. Most behaviors of any complexity are multiply determined. A variety of factors act to cause their occurrence.

Summary

- When thinking about the causes of behavior, think in terms of multiple causes.
- Do not fall into the trap of thinking that a particular behavior must have a single cause. Most behaviors of any complexity are multiply determined. A variety of factors act to cause their occurrence.
- Sometimes these factors interact when in combination. That is, the effect of the variables acting together is different than what one would have expected from simply studying them in isolation.

Questions?