

Explaining the Explainer

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Conditions for a proper explanation

- 1. Explanation must predict desired behavior. (But it may also predict behaviors that do not occur)**
- 2. Explanation must not also predict behaviors that examination shows do not occur.**

Cause-and-Effects relate Explanations to Behaviors

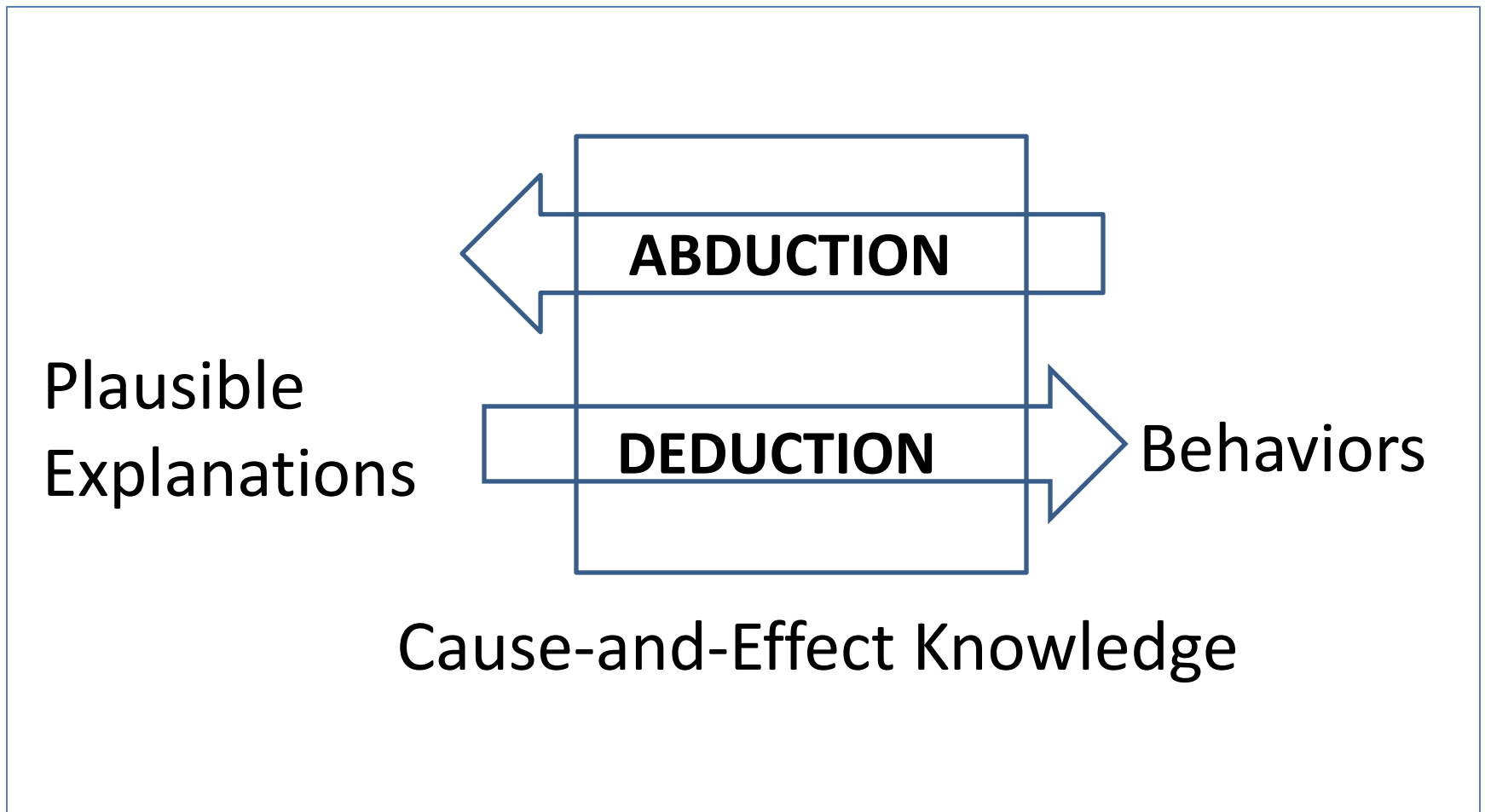
Plausible
Explanations

Cause-
and-
Effects

Behaviors

- Behavior to be explained

Cause-and-Effects relate Explanations to Behaviors

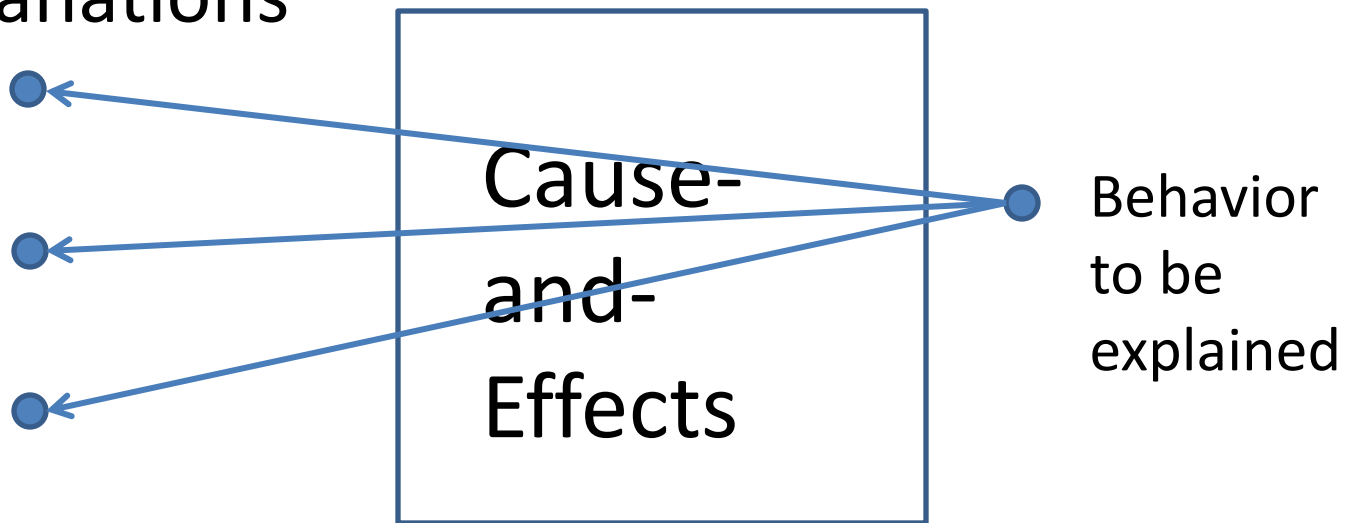


Abduction

Find plausible explanations for behavior to be explained

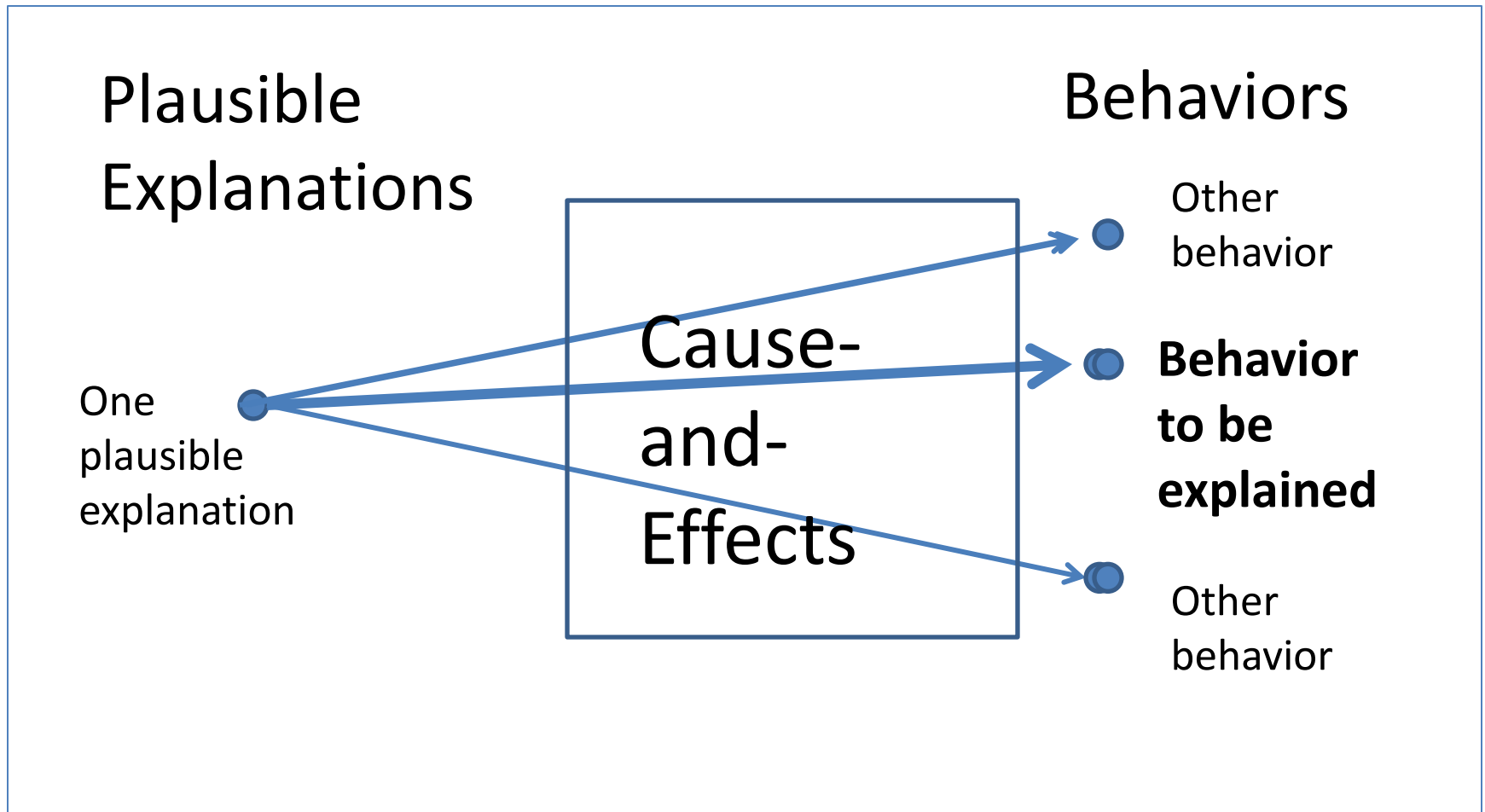
Plausible
Explanations

Behaviors

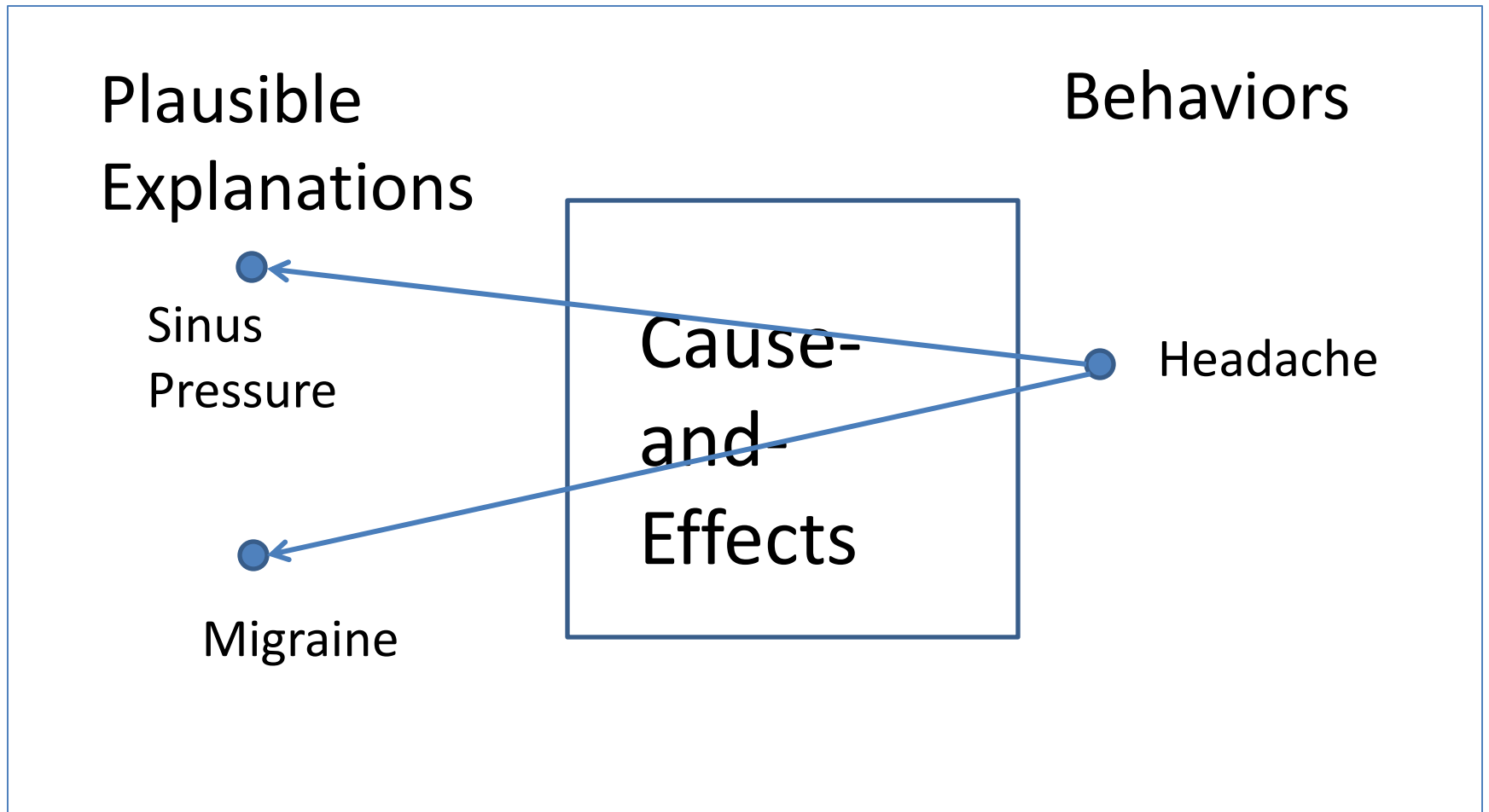


Deduction

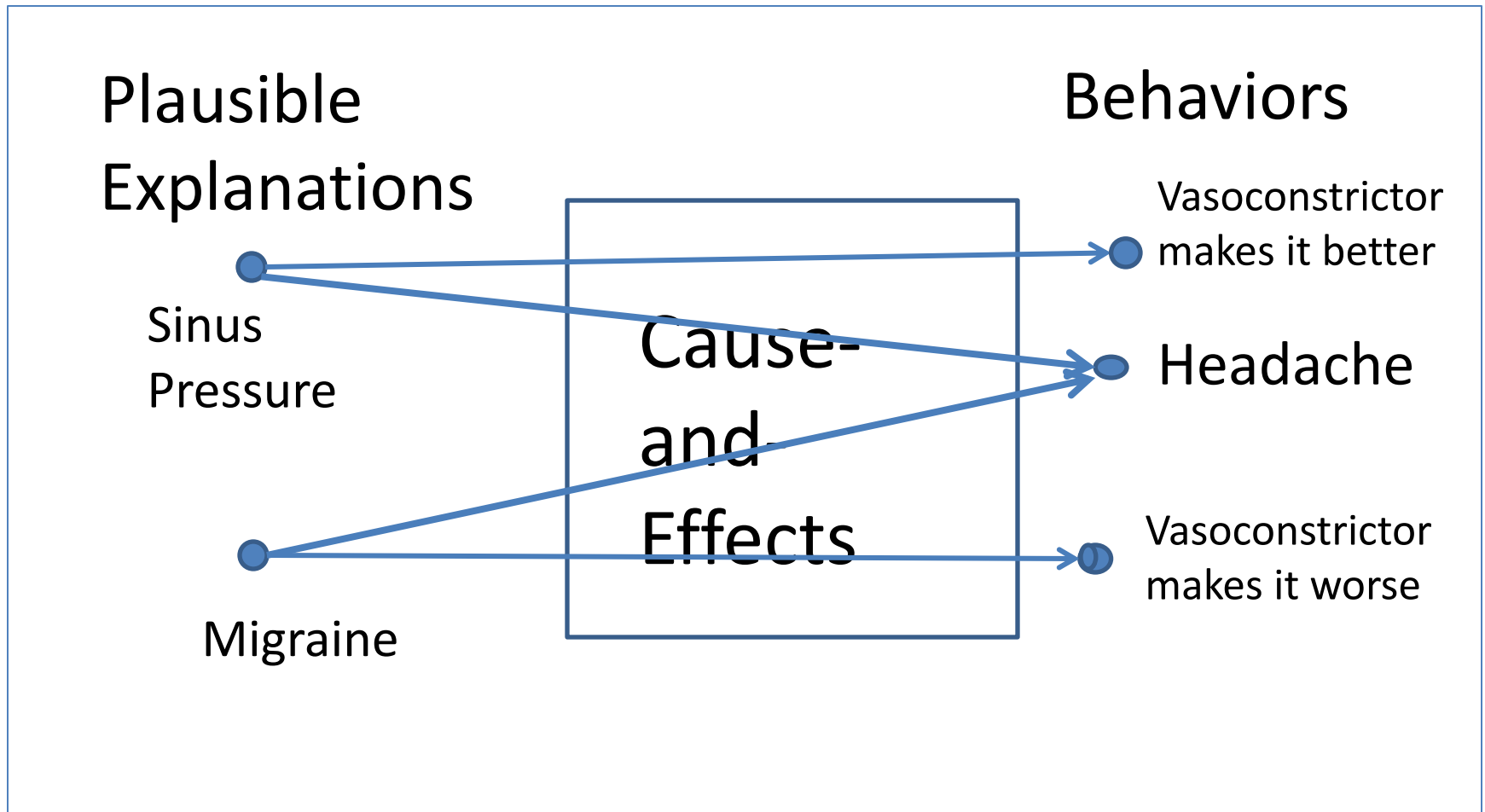
Find behaviors predicted by each explanation



Example: Headaches



Predicted behaviors for each explanation



Problem Solving Process

ABDUCTION: There are two explanations for the headache.

Both predict the headache.

DEDUCTION

But one explanation would also predict that taking a vasoconstrictor would alleviate the headache.

The other would also predict that taking a vasoconstrictor would make the headache worse.

Problem Solving Process

QUESTIONS:

Are these other predicted behaviors true?

EXAMINATION:

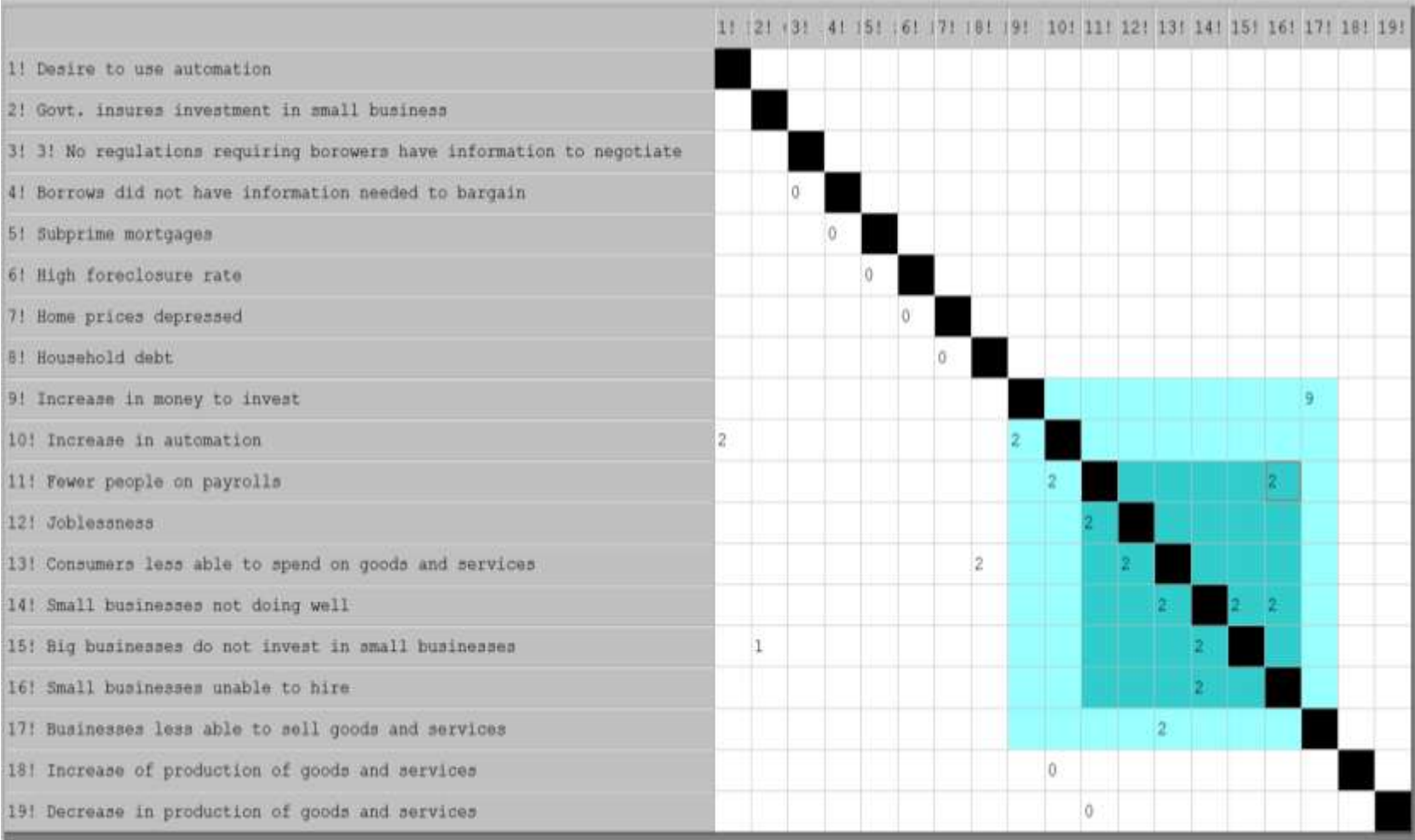
Conduct tests to determine whether they are true.

Taking vasoconstrictor makes headaches worst.

CONCLUSION:

Eliminate explanations that predict what are not true, leaving valid explanations that predict the behavior to be explained but not behaviors that do not occur.

A Block has Two Solutions (clockwise and counterclockwise) or is Conflicted



Two types of Nodes & Arcs

Two interpretations

A

Logic: A is true

Mechanism: Positive – A is increasing

Negative – A is decreasing

A → B

Logic: If A is true then B is true

Mechanism: B increases or decreases in the same direction as A

A ↗ B

Logic: If A is true then B is false

Mechanism: B increases or decreases in the opposite direction as A

Labeling Process

Starting with any initial node, label it POSITIVE. Then for each exiting arc, label the node at the other end of the arc accordingly. Repeat for each newly labeled node. This gives one homogeneous solution. Let's call it clockwise.

Again, starting with the same initial node, label it NEGATIVE. Then for each exiting arc, label the node at the other end of the arc accordingly. Repeat for each newly labeled node. This gives the other homogeneous solution. Let's call it counterclockwise.

If any two arcs entering a node would cause it to be label differently, call the node CONFLICTED.

The Two Solutions

Variable	Clockwise	Counter clockwise
9 Increase in money to invest	Positive	Negative
10 Increase in automation	Positive	Negative
11 Fewer people on payrolls	Positive	Negative
12 Joblessness	Positive	Negative
13 Consumers less able to spend on goods and services	Positive	Negative
14 Small businesses not doing well	Positive	Negative
15 Big businesses do not invest in small businesses	Positive	Negative
16 Small businesses unable to hire	Positive	Negative
17 Businesses less able to sell goods and services	Positive	Negative

Cause-and-Effects - 1

- ☐ CAUSE~AND~EFFECT OF ECONOMIC CRISIS AND WIDENING WEALTH GAP
 - 1. Desire to use automation
 - 2. Govt. insures investment in small business
 - 3. No regulations requiring borrows have information to negotiate
 - ☐ 4. Borrowers did not have information needed to bargain
 - ☐ Caused By
 - +3. No regulations requiring borrows have information to negotiate
 - ☐ 5. Subprime mortgages
 - ☐ Caused By
 - +4. Borrowers did not have information needed to bargain
 - ☐ 6. High foreclosure rate
 - ☐ Caused By
 - +5. Subprime mortgages
 - ☐ 7. Home prices depressed
 - ☐ Caused By
 - +6. High foreclosure rate
 - ☐ 8. Household debt
 - ☐ Caused By
 - +7. Home prices depressed
 - ☐ 9. Increase in money to invest
 - ☐ Caused By
 - +13. Customers less able to spend on goods and services
 - ☐ 10. Increase in automation
 - ☐ Caused By
 - + 1. Desire to use automation
 - + 9. Increase in money to invest

Cause-and-Effects-2

- ☐ 11. Fewer people on payroles
 - ☐ Caused By
 - └+13. Customers less able to spend on goods and services
- ☐ 12. Joblessness
 - ☐ Caused By
 - └+ 10. Increase in automation
 - └+ 13. Customers less able to spend on goods and services
- ☐ 13. Customers less able to spend on goods and services
 - ☐ Caused By
 - └+8. Household debt
- ☐ 14. Small businesses not doing well
 - ☐ Caused By
 - └+13. Customers less able to spend on goods and services
- ☐ 15. Big businesses do not invest in small businesses
 - ☐ Caused By
 - └+13. Customers less able to spend on goods and services
- ☐ 16. Small businesses unable to hire
 - ☐ Caused By
 - └+13. Customers less able to spend on goods and services
- ☐ 17. Businesses less able to sell goods and services
 - ☐ Caused By
 - └+13. Customers less able to spend on goods and services
- ☐ 18. Increase in production of goods and services
 - ☐ Caused By
 - └+ 10. Increase in automation
- ☐ 19. Decrease in production of goods and services
 - ☐ Caused By
 - └+ 11. Fewer people on payroles

Conclusion

After eliminating intermediate effects between behavior and assumptions

Clockwise solution

EFFECT 12. Joblessness

CAUSED BY 1. Desire to use automation

AND 3. No regulations requiring borrow
to have information to negotiate.

Counterclockwise solution

EFFECT 12. Not Joblessness

CAUSED BY 2. Govt. insures investments in small
businesses