

# Critical Thinking—Logical Fallacies Examples

This guide provides explanation and examples of some common logical errors

## Common Fallacies of Insufficient Evidence

Mistakes in reasoning as the premises do not provide sufficient evidence to support the conclusion

### Hasty Generalisation

Drawing a conclusion about a group based on a small or unrepresentative sample

- ✗ Based on food selection behaviour of four Indian children aged three, it can be concluded that young children will not eat beetroot.  
(The sample size is too small and specific to make this generalisation)
- ✓ Based on the food selection behaviour of four Indian children aged three, it is suggested that some young children may have an aversion to the taste or texture of beetroot. Further research is required.

### Circular Reasoning

Using the conclusion as evidence for itself

Speaker A: This candidate should be hired because they have a strong track record.

Speaker B: What makes their track record strong?

- ✗ Speaker A: They have done a great job in previous roles.

(The answer given by Speaker A to the question posed by Speaker B simply reiterates the first statement by Speaker A rather than detailing the strengths or achievements of the candidate in previous roles)



*Note.* Icons created using GenAI. From *Copilot* (Version 2.20260122.47.0) [Large Language model], by Microsoft Corporation, 2026 (<https://copilot.cloud.microsoft>).

### Suppressed Evidence

Drawing a conclusion while ignoring or omitting other evidence

- X This study shows that 75% of children do not improve their test scores after completing the programme, so the programme should be discontinued.  
(This statement singles out one study when others may also be available)
- ✓ This study shows that 75% of children do not improve their test scores after completing the program. We need to investigate all the relevant research so we can assess whether to continue the programme.




---

### Appeal to Ignorance

Gaps in evidence are used to make speculations, or claims are made that something is true or not true because the inverse has not been proven

- X There's no information about who built the ancient monuments. They must have been built by aliens.  
(the lack of is used to support an alternative speculative explanation)
- ✓ There's no information about who built the ancient monuments. Some people have speculated that they were built by aliens.
- X This supplement is safe; there is no evidence to show it is harmful.  
(The lack of evidence to the contrary is used to support a claim)
- ✓ Research is required to determine whether this supplement is safe.

### Appeal to Authority

Using an expert's opinion as proof

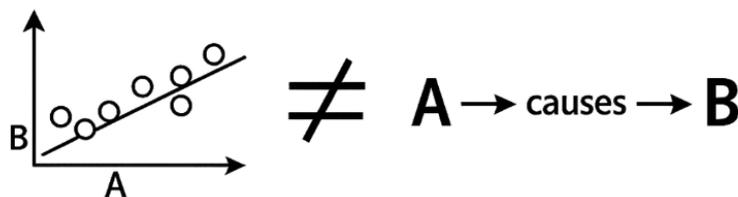
- X Isaac Newton believed in alchemy, and he is one of the fathers of physics, so alchemy is a valid science.  
(Just because someone has the right qualifications and is deemed an expert, their claims still needs to be judged on their own merits)
- ✓ Isaac Newton believed in alchemy, and even though he is considered one of the fathers of physics, alchemy is considered a pseudoscience as it is based in philosophy and mysticism and is not supported by rigorous, repeatable, and falsifiable experiments.

### Assumed Cause

A causal connection is assumed based on a correlation, sequence of events, or coincidence. Also, a known cause and effect relationship may have been reversed so that the effect is said to be the cause and the cause is said to be the effect.

#### Correlation

- X There is a positive correlation between class participation and student grades. Low class participation leads to lower grades.  
(Correlation does not mean causation)
- ✓ Lack of class participation may be one factor contributing to lower student grades; however, there are multiple other factors that may also contribute to lower student grades, and more research is required to identify these factors.



#### Sequence of events and coincidence

- X Since the change of councillors in the local body election, crime has increased. Therefore, mismanagement by the new councillors is responsible for the increase in crime.  
(There is no evidence to suggest that increased crime is caused by the presence of new councillors)
- ✓ Investigation is needed to identify the potential factors that have caused the increase in crime and to see if there have been policy changes by the new councillors that may have impacted on crime statistics.

### *Reversing the cause and effect relationship*

- X The study showed that Facebook users have longer lifespans. This finding is supported by multiple other research showing that healthier, socially active people, who already have longer life expectancy, are more likely to use Facebook. Therefore, using Facebook will cause you to have a longer life.

(The other research results state the cause is longer life expectancy and the effect is Facebook use; however, the author reverses this, stating the cause is Facebook use and the effect is longer lifespan)

- ✓ The study showed a positive correlation between Facebook use and longer lifespans. This finding is supported by other research showing that healthier, socially active people, who already have longer life expectancy, are more likely to use Facebook.

### *Oversimplified cause*

- X Exam achievement has declined steadily over the last ten years. Clearly, students are spending too much time on social media.

(An assumption is made regarding the cause)

- ✓ Exam achievement has declined steadily over the last ten years. It is speculated that one reason is students spending too much time on social media. Research is required to determine if social media use is a factor in students' declining exam results.

### **Slippery Slope**

Assuming that one event will lead to a chain of increasingly adverse outcomes

Historical slippery slope arguments regarding women's suffrage included:

- X Allowing women to vote would lead to conflict in marriage, destruction of the family unit, child neglect, and the downfall of civilisation.

Allowing women to vote would lead to destruction of traditional households, foolish electoral outcomes, and extreme laws.

Women's suffrage has led to abortion, birth control, promiscuity outside of marriage, and the collapse of the family.

(The assertions are speculative and without evidence to support the suggested causal relationship between women's suffrage and the outcomes mentioned)



### Weak Analogy

Drawing an analogy but ignoring differences

- X A mechanic is like a doctor; doctors diagnose health problems, and mechanics diagnose vehicle problems, so mechanics should be paid the same as doctors.  
(Although there is a similarity in relation to diagnosing problems, other aspects differ)
- ✓ Mechanics and doctors both diagnose problems. Differences in the training required and the ramifications when errors are made account for their differences in income.

## Common Fallacies of Ambiguity or Misrepresentation

Mistakes in reasoning as the premises are ambiguous or are misrepresented, leading to a flawed conclusion

### False Dichotomy (either/or fallacy)

Presenting only two options when more options exist

- X You are either an introvert or an extrovert  
(This claim provides just two options while ignoring the spectrum of introversion, ambiversion, and introversion and contextual factors that may impact on behaviour)
- ✓ There is a range of introversion and extroversion behaviours which are fluid for each person depending on specific situations they may encounter.

### False Equivalence

Claiming that two things are equal when they are not

- X Both sides made mistakes.  
(This statement reduces the responsibility and accountability for the person who made major errors and increases the responsibility for the person who made minor errors)
- ✓ Although both sides made mistakes, some mistakes caused more disruption than others and each person will be held accountable for their own errors.

- X A peaceful protest is just as dangerous as a violent riot because both disrupt the community.  
(This argument oversimplifies the similarity and ignores the more complex differences)
- ✓ Although peaceful protests and violent riots can both be disruptive, peaceful protests are lawful while violent riots are not.



## Common Fallacies of Relevance

### Mistakes in reasoning as the premises are logically unrelated to the conclusion

#### Attacking the Person (Ad Hominem)

The character, motivation, or personal attributes of the person or group making the point is attacked rather than addressing the point itself

- X That witness is unreliable because they are addicted to drugs.  
(The circumstance of the witness is used to discredit their testimony)
- ✓ All witness's testimony must be evaluated and judged on their accuracy.

#### Straw Man

A point is countered by misrepresenting, oversimplifying, or distorting the argument

**Statement:** The Ministry of Health recommends reducing intake of sugar to lower obesity.

**Straw Man version:** The government plan to control the population's diet and stop them enjoying their food.

(The straw man version is a fallacy because

- the recommendation was from bureaucrats, not the government
- it was a suggestion to reduce sugar, not a decree to control people's diet
- the reason was to lower obesity, not to stop people enjoying food)



### Bandwagon Fallacy

Assuming something is accurate because many others support it

- X This protest has attracted a large number, so they must be right  
(Popularity does not mean the ideas believed by the group are accurate)
- ✓ This protest has attracted a large number. We must assess their point based on facts before assuming they are right.
  
- X It is OK to get GenAI to do my assignment for me, everyone is doing that.  
(Popularity does not justify unethical behaviour)
- ✓ It is never OK to get GenAI to do my assignment for me.
  
- X This journal has the highest impact factor, so its articles must have more credibility.  
(Impact factor is based on the number of citations of articles within the journal; the impact factor does not directly reflect the quality of articles in the journal)
- ✓ This journal has the highest impact factor, but we still must undertake an independent evaluation of the journal articles selected to ensure they are robust, credible research.
  
- X Although you have argued using evidence, three of us have a different opinion.  
(A majority opinion cannot dismiss empirical reasoning)
- ✓ We need to examine all of the evidence to establish a sound view on the topic.



### Attacking the Motive

When the motivation for the argument is attacked rather than addressing the argument itself

- X The political party's policy is to cut taxes in the highest tax bracket, but opponents say, They only say that because tax cuts would benefit them personally.  
(This is a presumption of motive)
  - ✓ The political party's policy is to cut taxes in the highest tax bracket. The policy should be evaluated on the justifications given and on its overall merits and flaws.
- 

### Look Who's Talking

Rejecting an argument because the person does not take their own advice

- X That researcher states that daily sugar intake is unhealthy, but he cannot argue that as he eats dessert every day.  
(The personal habits of the researcher is irrelevant to the researcher's argument)
- ✓ That researcher states that daily sugar intake is unhealthy.

## Common Fallacies of Unfair Argument Shifting

### Attempts to avoid having to defend the argument

#### Burden of Proof

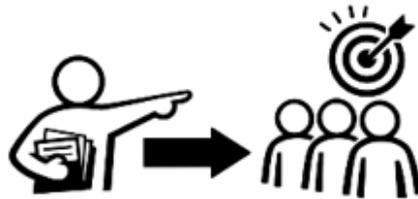
Shifting the responsibility to someone else to prove or disprove a claim

- X Ghosts exist. Prove me wrong.  
(Rather than providing evidence, a challenge is made to provide evidence to the contrary)
- ✓ We cannot be sure that ghosts exist without empirical evidence.

### Red Herring

Introducing irrelevant information to lead people away from the main point

- X We need more taxation to support the programmes that we have. Children are our future. Let's support children.  
(This argument diverts the attention from increasing taxation to supporting children)
  
- ✓ We need more taxation to support the programmes that we have. On another topic, children are our future, and we need to identify ways to further support children.



---

### Bibliography

Bassham, G., Irwin, W., Nardone, H., & Wallace, J. M. (2023). *Critical thinking: A student's introduction* (7th ed.). McGraw Hill.

Microsoft Corporation. (2026). *Copilot* (Version 2.20260122.47.0) [Large Language model]. <https://copilot.cloud.microsoft>

February 2026