

CRITICAL THINKING 3

01 LESSON OBJECTIVES

- Learn six kinds of fallacies related to relevance.
- Successfully apply fallacies in various critical thinking exercises.

02 OVERVIEW

Fallacies of insufficient evidence are mistakes in reasoning because they do not provide enough proof to support the claim. The premises might be relevant but the link between premise and claim needs more information.

03 LAST LESSON

- A logical fallacy is an argument that contains a mistake in reasoning.
- Fallacies can be divided into two general types: relevance and insufficient evidence.
- Fallacies of relevance: the premises are not logically connected to the claim.

04-A REVIEW #1 - IDENTIFY THE FALLACY OF RELEVANCE

Look at these arguments. Name the fallacy of relevance.

1. Professor Jones has argued against the theory of evolution. But he is a member of the Nazi Association. Therefore, I refuse to listen to him.
2. My opponent, Bill Peters, has accused me of running a negative political campaign. But he has run a much more negative campaign than I have. Last week he ran television ads accusing me of cruelty to animals. Clearly, Peters's charge that I'm guilty of mudslinging is untrue.
3. All the cool kids at school use BB cream. Maybe I should, too.
4. Feminism is a socialist, anti-family political movement that encourages women to leave their husbands, kill their children, practice witchcraft, destroy capitalism and become lesbians. That is why I am against women's rights.
5. Politician A: Due to this year's budget problems, I think our government should decrease the amount of money going to teacher training. This would solve the problem.
Politician B: Is this what you want in a president? Someone who is against our schools, against our children's education, and against our future?
6. Plaintiff: Judge, I'm not lying here. I'm a religious person, and religious people don't lie.
Judge: How do I know you are a religious person?
Plaintiff: Because I would never lie.
7. Trident gum is great for reducing cavities. Dentists say cavities are the number one dental problem in America.

04-B REVIEW #2 - FACTS FROM INFERENCES

Read the report and observations. Are the observations true, false, or doubtful on the basis of the information?

Write T if the observation is definitely true, F if the observation is definitely false, and ? if the observation may be either true or false. Look at each observation in order.

A well-liked university instructor had just completed making up the final examinations and had turned off the lights in the office. Just then a tall, broad figure with dark glasses appeared and demanded the examination. The professor opened the drawer. Everything in the drawer was picked up and individual ran down the corridor. The president was notified immediately.

- _____ 1. The thief was tall, broad, and wore dark glasses.
- _____ 2. The professor turned off the lights.
- _____ 3. A tall figure demanded the examination.
- _____ 4. The examination was picked up by someone.
- _____ 5. The examination was picked up by the professor.
- _____ 6. A tall, broad figure appeared after the professor turned off the lights in the office.
- _____ 7. The man who opened the drawer was the professor.
- _____ 8. The professor ran down the corridor.
- _____ 9. The drawer was never actually opened.
- _____ 10. Three persons are referred to in this report.

05 PAIR WORK STUDENT A

Read about three kinds of fallacies.

5.1 Appeal to Authority (celebrities endorse a product)

Support an idea based on a person who is not an authority on the topic. This method is popular in advertising with well-liked celebrities. This fallacy assumes:

1. Person A is popular.
2. Therefore his/her claim must be good or true.

An appeal to authority is a fallacy because the person has no special knowledge or skill to support the claim.

EXAMPLE

Hi, I'm boxing champ Buster Brawler. After a tough night in the ring, my face needs some tender loving care. Lather-X Sensitive Skin Shaving Gel. You can't get a smoother, closer shave.

5.2 Appeal to Ignorance (there's no proof against it, so it must be true)

A lack of evidence is the reason a claim is true or false. This argument assumes:

- Person A makes claim X.
- Person A says there is no proof otherwise.
- Therefore X is true.

This argument is fallacious because it offers no evidence for its claim. The fact that a claim hasn't been proven false does not make it true. This argument shifts the burden of proof. Generally, the person who wants to prove a claim true has to give evidence.

EXAMPLE

- Clearly, God exists. After all, atheists have never proven that there is no God.
- No one has ever proven that God exists. Therefore, God does not exist.

5.3 False Alternatives (you are with me, or against me)

The fallacy of false alternatives happens when a person creates a false either/or choice. The basic pattern of this fallacy is:

- Person A says there are only 2 choices.
- If you don't choose A, you must choose B.

This argument is a fallacy when there are more than two choices.

EXAMPLE

The choice is simple. Either you support a free-market economy or you're a communist. Surely you don't support communism. Therefore, you should support a free-market economy.

06 PAIR WORK STUDENT B

Read about three kinds of fallacies.

6.1 Post Hoc (questionable cause)

When a person claims, without sufficient evidence, that one thing is the cause of something else. This reasoning has the following pattern:

- X happens before Y.
- Therefore X is the cause of Y.

One thing happening next to another does not prove causation. This is the root of most superstitions.

EXAMPLE

Aztec high priest: Every spring we sacrifice a virgin to the sun god, and every summer the life-giving rains come.

Therefore, sacrificing a virgin causes the life-giving rains to come.

6.2 Slippery Slope (if we do that, the world will end)

We claim, without sufficient evidence, that a small action will lead to a disastrous result. This reasoning has the following pattern:

- Event X has occurred (or might occur).
- Therefore event Y will inevitably happen.

This reasoning is fallacious because there is no reason to believe that one event must follow another. This is especially true when there are a number of steps or between one event and another.

EXAMPLE

Bans on assault weapons must be opposed. Once the government has outlawed assault weapons, they'll go after handguns. After that, they'll ban shotguns and hunting rifles. In the end, law-abiding citizens will be left defenseless against a tyrannical government.

6.3 Hasty Generalization (too quick to generalize)

A claim says every member of one group has a certain quality based on a bias or small sample. This reasoning has the following form:

- Premise X sees one quality in a small sample.
- Therefore X is true for all members of that group.

This reasoning is fallacious because a small sample size or bias prevents people from making true claims about a larger group.

EXAMPLE

Do most Americans still believe in God? To find out, we asked 1,000 scientists at universities in America.

Less than 30 percent said they believe in God. The conclusion is obvious. Most Americans no longer believe in God.

07 **PRACTICE**

Read these arguments. Identify the fallacy in each argument.

1 I'd better eat my Wheaties. Michael Jordan says that it's the breakfast of champions.

2 I can't believe I failed my chemistry test. I knew I should have worn my lucky sweatshirt to the test.

3 If the government starts to implant tracking devices in passports, it's not going to stop there! They're going to want to track everybody eventually.

4 Did you vote for the idiot or the liar in the last presidential election?

5 Wow! Did you see that teenager run the red light? Teenage drivers are really pathetic.

6 Either you support preferential treatment for minorities in university admissions, or you're a racist. Surely you're not a racist. Therefore, you support preferential treatment for minorities.

7 There is no information in Private Baker's record indicating that he is not a homosexual. Consequently, I can only assume that he is.

8 Roosters crow just before the sun rises. Therefore, roosters crowing cause the sun to rise.

08 **MORE PRACTICE**

Watch and listen to these short video clips. Write the claim and premises. What logical fallacies are used? Write a simplified sentence to isolate the premises and claims.

V1. Like It Or Not

Argument

Fallacy

V6. Freakonomics

Argument

Fallacy

V3. Beer Spot

Argument

Fallacy

V4. George Bush

Argument

Fallacy

09 **STUDENT A - EVEN MORE PRACTICE**

Read these arguments to your partner. Your partner must:

1. Summarize the argument using the simplified sentence.
2. Identify the fallacy, if there is one.

Do you agree with your partner's answers?

- 1 Bigfoot must exist. No one has proved that it doesn't.

- 2 Two days after I drank lemon tea, my cold cleared up completely. Try it. It works.

- 3 BMWs are a pile of junk. I have two friends who drive BMWs, and both of them have had nothing but trouble from those cars.

- 4 Watch this TV show or be un-American!

10 **CHECK LIST**

1. Define six fallacies of insufficient evidence.
2. Define six fallacies of relevance.
3. What is an inference?
4. What is the difference between an inference and an assumption?
5. Explain how bias might create a fallacy.

09 **STUDENT B - EVEN MORE PRACTICE**

Read these arguments to your partner. Your partner must:

1. Summarize the argument using the simplified sentence.
2. Identify the fallacy, if there is one.

Do you agree with your partner's answers?

- 1 If we allow same-sex couples to marry, then soon we will allow people to marry their parents, their cars and even monkeys.

- 2 Reincarnation probably exists. After all, Albert Einstein believed in it.

- 3 Many homosexuals have AIDS, therefore, homosexuality causes AIDS.

- 4 The CNN meteorologist was wrong in predicting the rain yesterday. Obviously, he's not a reliable weatherman.

10 **CHECK LIST**

1. Define six fallacies of insufficient evidence.
2. Define six fallacies of relevance.
3. What is an inference?
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ANSWERS

04-A REVIEW - IDENTIFY THE FALLACY

Personal attack (ad hominem):

Professor Jones is a member of the Nazi Association. I refuse to listen to him.

You too (tu quoque): My opponent, Bill Peters, has accused me of running a negative political campaign.

Bandwagon argument: All the cool kids at school wear BB cream. Maybe I should, too.

Straw man: Feminism is about a anti-family political movement

Straw man: Politician A: Due to this year's budget problems, I think our city should decrease the amount of money going to the teacher training. This would solve the problem.

Beg the question: Plaintiff: Judge, I'm not lying here. I'm a religious person, and religious people don't lie. Judge: How do I know you are a religious person? Plaintiff: Because I would never lie

Red herring. Trident gum is great for reducing cavities. Dentists say cavities are the number one dental problem in America.

04-B REVIEW FACTS FROM INFERENCES

1. "?" We are not sure that the "tall, broad figure wearing dark glasses" is a thief;. It could be a secretary demanding the exam to make copies, or a student who is taking the test early. The report does not provide enough information for us to know who or what the "figure" is with certainty.
2. "T" The report specifically says the professor turned off the lights.
3. "T" The report specifically says that a tall figure demanded the exam.
4. "?" The report never says that the exam was picked up only that everything in the drawer was picked up. The exam may not have been in the drawer.
5. "?" The report never says the exam was picked up, let alone by the professor.
6. "T" The report clearly says that just after the professor turned off the lights in the office, a tall, broad figure wearing dark glasses appeared.
7. "?" The report does not say that the professor is a man!
8. "?" We do not know who ran down the hall, only that it was an "individual."
9. "F" The report specifically says that the drawer was opened by the professor
10. "?" We don't know how many people are referred to. A "professor," "figure," "individual," and "president" are mentioned. However, we don't know if the professor and individual are the same or different persons. It is possible that the president is either the individual or the "figure."

07 **PRACTICE**

1 I'd better eat my Wheaties. Michael Jordan says that it's the breakfast of champions. AUTHORITY _____

2 I can't believe I failed my chemistry test. I knew I should have worn my lucky sweatshirt to take the test. POST HOC _____

3 If the government starts to implant tracking devices in passports, it's not going to stop there! They're going to want to track everybody eventually. SLIPPERY SLOPE _____

4 Did you vote for the idiot or the liar in the last presidential election? FALSE ALTERNATIVE _____

5 Wow! Did you see that teenager run the red light? Teenage drivers are really pathetic. HASTY GENERALISATIONS _____

6 Either you support preferential treatment for minorities in university admissions, or you're a racist. Surely you're not a racist. Therefore, you support preferential treatment for minorities. FALSE ALTERNATIVE _____

7 There is no information in Private Baker's record that indicates that he is not a homosexual. Consequently, I can only assume that he is. IGNORANCE _____

8 Roosters crow just before the sun rises. Therefore, roosters crowing cause the sun to rise. POST HOC _____

08 MORE PRACTICE

Watch and listen to these short video clips. Write the claim and premises. What logical fallacies are used? Write a simplified sentence to isolate the premises and claims.

V1. Like It Or Not

Argument

Vote yes in the election because lawsuits might increase, churches go bankrupt and gay marriage taught in school.

Fallacy

slippery slope

V6. Freakonomics

Argument

The man says people used to stop ice cream because it caused polio in kids.

Fallacy

post hoc, a correlation not causation

V3. Beer Spot

Argument

The story you should trust this man's opinion about beer because he's the coolest guy in the world

Fallacy

appeal to authority

V4. George Bush

Argument

The president says you are a friend or enemy because there are only two choices.

Fallacy

false alternative

V5. Bill O'Reilly

Argument	The man says it's easier to believe in god because we can;t explain the formation of he universe.
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Fallacy	appeal to ignorance
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V2. Don't Sell Your Hair

Argument	The story says you should a TV because it will prevent many bad things from happening.
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Fallacy	slippery slope, clearly, very good
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V7. Justin Bieber

Argument	The boy buy this because it really works and makes his life great.
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Fallacy	appeal to authority, bandwagon
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V8. Joe the Plumber

Argument	The man says thousands of people were killed because gov-ernments implemented gun control.
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Fallacy	post hoc, a correlation not causation
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09 **STUDENT A - EVEN MORE PRACTICE**

- 1 Bigfoot must exist. No one has proved that it doesn't.
Appeal to ignorance:

- 2 Two days after I drank lemon tea, my cold cleared up completely. Try it. It works.
Post hoc, questionable cause:

- 3 BMWs are a pile of junk. I have two friends who drive BMWs, and both of them have had nothing but trouble from those cars.
Hasty generalization:

- 4 Watch this TV show or be un-American!
false choice

09 **STUDENT B - EVEN MORE PRACTICE**

- 1 If we allow same-sex couples to marry, then soon we will allow people to marry their parents, their cars and even monkeys.
slippery slope

- 2 Reincarnation probably exists. After all, Albert Einstein believed in it.
appeal to authority

- 3 Many homosexuals have AIDS, therefore, homosexuality causes AIDS.
Post hoc, questionable cause:

- 4 The CNN meteorologist was wrong in predicting the rain yesterday. Obviously, he's not a reliable weatherman.
Hasty generalization

