

Critical Thinking

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Lecture 4

MGM115
Critical Thinking



جامعة الجميع الذكية
EVERYONE'S SMART UNIVERSITY

LOGICAL FALLACIES

Mostly from Critical Thinking, Bassham and others

This lecture includes:

- **Fallacies of relevance**
- **Fallacies of insufficient evidence**



We encounter arguments all over the place: in books, advertisements, TV talk shows, political speeches, newspaper editorials, class discussions, and late-night bull sessions with our friends. Some of those arguments are sound and convincing, but many are fallacious. An argument is fallacious when it contains one or more logical fallacies. A logical fallacy —or fallacy, for short—is an argument that contains a mistake in reasoning. In this lecture, we discuss many of the most common logical fallacies. In general, these are fallacies that are both frequently committed and often psychologically persuasive.



There are many common logical fallacies, and they can be classified in various ways. The simplest way is to divide such fallacies into **two broad groups**: fallacies of relevance and fallacies of insufficient evidence. **Fallacies of relevance** are mistakes in reasoning that occur because the premises are logically irrelevant to the conclusion. **Fallacies of insufficient evidence** are mistakes in reasoning that occur because the premises, though logically relevant to the conclusion, fail to provide sufficient evidence to support the conclusion.

THE CONCEPT OF RELEVANCE

To say that one statement is *relevant* to another is to say that *it counts either **for or against** that other statement*. In other words, a statement is relevant to another statement **if it provides at least some reason** for thinking that the **second statement is true or false**.

There are three ways in which a statement can be relevant or irrelevant to another. A statement can be **positively relevant, negatively relevant, or logically irrelevant** to another statement.



Positively relevant

Dogs are cats. Cats are felines. So dogs are felines.

A statement can be relevant to another statement even if the first statement is completely false. Thus, in the first example, the statement “Dogs are cats” is clearly false. Nevertheless, it is relevant to the statement “Dogs are felines” because if it were true, the latter statement would have to be true as well.

Negatively relevant

Statements that count against other statements are said to be negatively relevant to those statements. Here are two examples of negative relevance:

Marty is a high-school senior. So, Marty likely has a Ph.D.

Althea is two years old. So, Althea probably goes to college.

In both examples, the premises are negatively relevant to the conclusion. Each premise, if true, provides at least some reason for thinking that the conclusion is false.

logically irrelevant

A statement is logically irrelevant to another statement if it counts neither for nor against that statement. For example:

The earth revolves around the sun. Therefore, marijuana should be legalized.

Last night I dreamed that the Yankees will win the pennant. Therefore, the Yankees will win the pennant.

Neither of these two premises provides the slightest reason for thinking that its conclusion is either true or false. Thus, they are logically irrelevant to those conclusions.



FALLACIES OF RELEVANCE

There are 11 fallacies of relevance:



Personal Attack (Ad Hominem)

We commit the fallacy of personal attack when we reject someone's argument or claim by attacking the person rather than the person's argument or claim.

Example: Alex is arguing about racism . Jack said that we should not listen to Alex because he is a bad person.

Only if it's related to the argument, then it is not a fallacy.

For example, Alex is testified against Jack in the court. You mentioned that Alex has a record of lying history.



Attacking the Motive

Attacking the motive is the error of criticizing a person's motivation for offering a particular argument or claim, rather than examining the worth of the argument or claim itself. The pattern of reasoning is fallacious because people with biases or questionable motives do sometimes offer good arguments. You cannot simply assume that because a person has a vested interest in an issue, any position he or she takes on the issue must be false or weakly supported.

Professor Michaelson has argued in favor of academic tenure. But why should we even listen to Professor Michaelson? As a tenured professor, of course he supports tenure.



The fallacy of look who's talking is committed when an arguer rejects another person's argument or claim because that person fails to practice what he preaches.

Example:

Doctor: You should quit smoking.

Patient: Look who's talking! I'll quit when you do, Dr. Smokestack!

Look Who's Talking

It should be noted, however, that there is nothing fallacious as such in criticizing a person's hypocritical behavior.

For example: Jim: Our neighbor Joe gave me a hard time again yesterday about washing our car during this drought emergency.

Patty: Well, he's right. But I wish that hypocrite would live up to his own advice. Just last week I saw him watering his lawn in the middle of the afternoon.

Here, Patty is simply pointing out, justifiably, that their neighbor is a hypocrite. Because she does not reject any argument or claim offered by the neighbor, however, no fallacy is committed.



Two Wrongs Make a Right

Closely related to the fallacy of look who's talking is the fallacy of two wrongs make a right, which occurs when an arguer attempts to justify a wrongful act by claiming that some other act is just as bad or worse. Here are some examples:

- I don't feel guilty about cheating on Dr. Boyer's test. Half the class cheats on his tests.**
- Why pick on me, officer? Nobody comes to a complete stop at that stop sign.**



Fear is a powerful motivator—so powerful that it often causes us to think and behave irrationally. The fallacy of scare tactics is committed when an arguer threatens harm to a reader or listener if he or she does not accept the arguer's conclusion and this threat is irrelevant to the truth of the arguer's conclusion.

Example:

Diplomat to diplomat: I'm sure you'll agree that we are the rightful rulers of the San Marcos Islands. It would be regrettable if we had to send armed forces to demonstrate the validity of our claim.



Appeal to Pity

The fallacy of appeal to pity occurs when an arguer inappropriately attempts to evoke feelings of pity or compassion from his listeners or readers.

Example: Parent to high school football coach: I admit my son Billy can't run, pass, kick, catch, block, or tackle, but he deserves to make the football team. If he doesn't make the team, he's going to be an emotional destroyed, and he may even drop out of school.

the argument is clearly fallacious because the premises provide no relevant reasons to accept the conclusions.



Bandwagon Argument

A bandwagon argument is one that plays on a person's desire to be popular, accepted, or valued, rather than appealing to logically relevant reasons or evidence. Here are two examples:

- All the really cool kids at East Jefferson High School smoke cigarettes.
- Therefore, you should, too.
- I can't believe you're going to the library on a Friday night! You don't want people to think you're a nerd, do you?

The basic pattern of these arguments is this:

1. Everybody (or a select group of people) believes or does X.
2. Therefore, you should believe or do X, too.

Straw Man

The straw man fallacy is committed when an arguer distorts an opponent's argument or claim to make it easier to attack. For example:

Pete has argued that the New York Yankees are a better baseball team than the Atlanta Braves. But the Braves aren't a bad team. They have a great pitching staff, and they consistently finish at or near the top of their division. Obviously, Pete doesn't know what he's talking about.

This argument misrepresents Pete's view. Pete hasn't claimed that the Braves are a bad team, merely that the Yankees are a better team than the Braves. By mischaracterizing Pete's view—making it seem weaker or less plausible than it really is—the arguer has committed the straw man fallacy.



Red Herring

The red herring fallacy is committed when an arguer tries to sidetrack his audience by raising an irrelevant issue and then claims that the original issue has effectively been settled by the irrelevant diversion.

Red Herring

For example:

Critics have accused my administration of doing too little to save the family farm. These critics forget that I grew up on a farm. I know what it's like to get up at the crack of dawn to milk the cows. I know what it's like to work in the field all day in the blazing sun. Family farms are what made this country great, and those who criticize my farm policies simply don't know that they're talking about.

The issue here is whether the speaker's administration is doing enough to save the family farm. The fact that the speaker grew up on a farm is simply a smokescreen used to distract attention from this issue.



The fallacy of equivocation is committed when a key word is used in two or more senses in the same argument and the apparent success of the argument depends on the shift in meaning. Here are two examples:

- It is a crime to smoke grass. Kentucky bluegrass is a grass. Therefore, it is a crime to smoke Kentucky bluegrass.**
- Any law can be repealed by the proper legal authority. The law of gravity is a law. Therefore, the law of gravity can be repealed by the proper legal authority.**

Begging the Question

The fallacy of begging the question is committed when an arguer states or assumes as a premise the very thing he or she is trying to prove as a conclusion. The most obvious way is to simply restate the conclusion in slightly different words. Example:

- **Bungee-jumping is dangerous because it's unsafe.**

The premise basically repeats the conclusion: saying that bungee-jumping is “unsafe” is another way of saying that it is “dangerous.”

FALLACIES OF INSUFFICIENT EVIDENCE

The fallacies of relevance, mistakes in reasoning that occur when the premises are logically irrelevant to the truth of the conclusion. Now we discuss fallacies of insufficient evidence —mistakes in reasoning in which the premises, though relevant to the conclusion, fail to provide sufficient evidence for the conclusion. We discuss nine such fallacies.

Inappropriate Appeal to Authority

The fallacy of inappropriate appeal to authority is committed when an arguer cites a witness or authority who, there is good reason to believe, is unreliable. But when, in general, is it reasonable to believe that a witness or an authority is unreliable? Here are some relevant circumstances:

- when the source is not a genuine authority on the subject at issue**
- when the source is biased or has some other reason to lie or mislead**
- when the accuracy of the source's observations is questionable**
- when the source cited (e.g., a media source, a reference work, or an Internet source) is known to be generally unreliable**

Inappropriate Appeal to Authority

- **when the source has not been cited correctly or the cited claim has been taken out of context**
- **when the source's claim conflicts with expert opinion**
- **when the issue is not one that can be settled by expert opinion**
- **when the claim is highly improbable on its face**

Appeal to Ignorance

When an arguer treats a lack of evidence as reason to think that a claim is true or false, he or she commits the fallacy of appeal to ignorance. More precisely, the fallacy of appeal to ignorance occurs when an arguer asserts that a claim must be true because no one has proven it false or, conversely, that a claim must be false because no one has proven it true. Here are examples:

- There must be intelligent life on other planets. No one has proven that there isn't.**
- There isn't any intelligent life on other planets. No one has proven that there is.**



Appeal to Ignorance

Is it ever legitimate to treat a lack of evidence for a claim as evidence that the claim is false? In some cases, yes. Two exceptions should be noted. **First, sometimes the fact that a search hasn't found something is good evidence that the thing isn't there to be found.**

Example: We've searched this car from top to bottom looking for the stolen jewels, and no trace of them has been found. Therefore, probably the jewels aren't in the car.

Appeal to Ignorance

The second exception applies to cases in which special rules require that a claim be rejected as false unless a certain burden of proof is met. Here is an example:

In the American legal system, a criminal defendant is legally guilty only if his or her guilt is proved beyond a reasonable doubt. My client has not been proven guilty beyond a reasonable doubt. Therefore, my client is not legally guilty.

In this example, special rules of evidence require that a claim be rejected as false unless it is proven to be true by some elevated standard of proof. Because these special rules justify the inference “not proven, therefore false,” no fallacy is committed.



The fallacy of false alternatives is committed when an arguer poses a false either/or choice.

Example:

Either we elect a Republican as president, or crime rates will skyrocket. Obviously, we don't want crime rates to skyrocket. Therefore, we should elect a Republican as president.

In this example, the arguers claim that there are only two relevant choices when, in fact, there are more than two.



A loaded question is a question that contains an unfair or questionable assumption. For example, “Do you still steal from your boss?” is a loaded question if it presupposes, without justification, that you once did steal from your boss. The loaded question fallacy occurs when an arguer asks a question that contains an unfair or unwarranted presupposition.

Loaded Question

Joe: Have you stopped cheating on exams?

Pete: No!

Joe: Oh, so you admit that you still cheat on exams?

Pete: No, I meant to say yes!

Joe: Oh, so you admit that you used to cheat on exams?

Pete: No!

The first question is a loaded question, and it is basically two questions:

- **Question 1: Did you cheat on exams in the past?**
- **Question 2: If you did cheat on exams in the past, have you stopped now?**

By applying Pete's single "yes" or "no" answers to both questions, Joe commits the fallacy of loaded question.



Questionable Cause

When an arguer claims, without sufficient evidence, that one thing is the cause of something else, he commits the fallacy of questionable cause.

There are three common varieties of the questionable cause fallacy.

The **post hoc fallacy** is committed when an arguer assumes, without adequate evidence, that because one event, A, occurred before another event, B, A is the cause of B.

example:

How do I know that ginseng tea is a cure for the common cold? Last week I had a bad case of the sniffles. I drank a cup of ginseng tea, and the next morning my sniffles were gone.

Another common variety of the false cause fallacy is the **mere correlation fallacy**, which is committed when an arguer assumes, without sufficient evidence, that because A and B regularly occur together, A must be the cause of B or vice versa.

Example:

On Monday I stayed up all night partying, had eggs for breakfast, and failed my calculus test. On Wednesday I stayed up all night partying, had eggs for breakfast, and failed my biology test. On Thursday I stayed up all night partying, had eggs for breakfast, and failed my history test. Obviously, to do better on tests, I must stop eating eggs for breakfast.



The most common form of the questionable cause fallacy is the **oversimplified cause fallacy**. This fallacy is committed when we assume, without adequate evidence, that A is the sole cause of B when, in fact, there are several causes of B.

Example:

Violent crime has declined steadily in recent years. Obviously, tougher imprisonment policies are working.

Hasty Generalization

A generalization is a statement that asserts that all or most things of a certain kind have a certain quality or characteristic. Examples:

- **All emeralds are green.**
- **Most college students receive financial aid.**

We commit the fallacy of hasty generalization when we draw a general conclusion from a sample that is biased or too small.

Example: Small-business owner: I've hired three ZZZZZ in the past six months, and all three were lazy and shiftless. I guess most ZZZZZ are lazy and shiftless.



We often hear arguments of this sort: “We can’t allow A, because A will lead to B, and B will lead to C, and we sure as heck don’t want C!” Arguments of this sort are called slippery-slope arguments. Often, such arguments are fallacious. We commit the slippery-slope fallacy when we claim, without sufficient evidence, that a seemingly harmless action, if taken, will lead to a disastrous outcome.

Example:

Bans on so-called assault weapons must be vigorously opposed. Once the gun-grabbing liberals have outlawed assault weapons, next they'll go after handguns. After that, it will be shotguns and semiautomatic hunting rifles. In the end, law-abiding citizens will be left totally defenseless against predatory criminals and a tyrannical government.

It is important to note that not all slippery-slope arguments are fallacious. Sometimes there are good reasons for thinking that a very bad outcome may result from a seemingly harmless first step. For example:

Brad, I know you've been shootin' up heroin. Man, don't you know what that stuff can do to you? First you shoot up "just when you need a high." After a while you become addicted to the stuff. You lose your job, your apartment, even rob from your best friend to feed the habit. Eventually, you wind up dead in some alley or strung out in some detox center. Listen to me, I'm your best friend. Think about what you're doing.



We have all heard the expression “That’s like comparing apples and oranges.” This saying points to a mistake called the fallacy of weak analogy, which occurs when an arguer compares two (or more) things that aren’t really comparable in relevant respects.

Example:

Lettuce is leafy and green and tastes great with a veggie burger. Poison ivy is also leafy and green. Therefore, poison ivy probably tastes great with a veggie burger, too.

Two statements are inconsistent when they both can't be true. The fallacy of inconsistency occurs when an arguer asserts inconsistent or contradictory claims.

Example:

Mickey Mantle: Hey, Yogi, what do you say we eat at Toots' tonight?

Yogi Berra: That place is old news. Nobody goes there anymore. It's too crowded.

A logical fallacy is an argument that contains a mistake in reasoning. Fallacies can be divided into two general types: fallacies of relevance and fallacies of insufficient evidence. Fallacies of relevance are arguments in which the premises are logically irrelevant to the conclusion. Fallacies of insufficient evidence are arguments in which the premises, though logically relevant to the conclusion, fail to provide sufficient evidence for the conclusion.

This lecture discussed eleven common fallacies of relevance:

Personal attack - Attacking the motive - Look who's talking - Two wrongs make a right - Scare tactics - Appeal to pity - Bandwagon argument - Straw man- Red herring – Equivocation - Begging the question.

In this lecture we studied nine types of fallacies of insufficient evidence:

Inappropriate appeal to authority - False alternatives - Loaded question - Questionable cause - Hasty generalization - Slippery slope - Weak analogy - Inconsistency

Thank you

