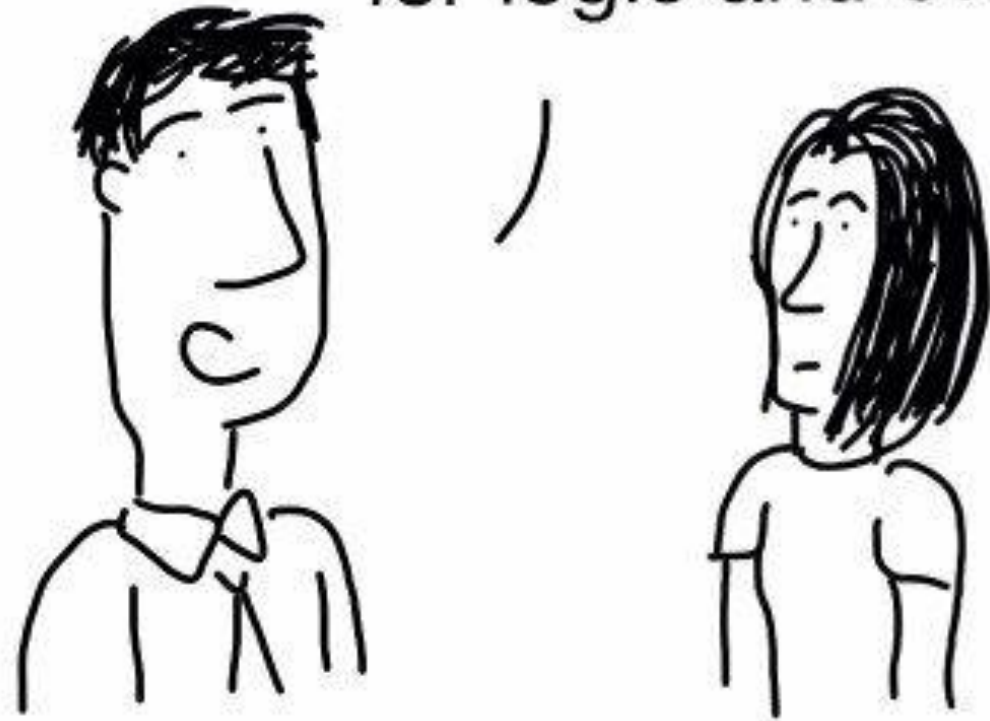


Starting Point

2

What do you
think fallacies
are?

I trust my gut,
Our project is too complex
for logic and evidence.



What is a logical fallacy?

- A fallacy is an error of reasoning. These are flawed statements that often sound true
- Logical fallacies are often used to strengthen an argument, but if the reader detects them the argument can backfire, and damage the writer's credibility
- Fallacy = an unsound or flawed argument that uses invalid or otherwise faulty reasoning

Origins

- The word “fallacy” may derive from the Latin word *fallere* meaning, “to deceive, to trip, to lead into error or to trick.” The word may also derive from the Greek *phelos*, meaning “deceitful.”

Why study logical fallacies?

5

- It is important to develop logical fallacy detection skills in your own writing, as well as others'.



Think of this as “intellectual kung-fu: the art of intellectual self defense.”

Types of Logical Fallacies

The following slides will *briefly* explain various categories under which logical fallacies can be divided. Each slide contains examples for one type of fallacy; please keep in mind there are many kinds of fallacies in each category.

For a more comprehensive list, consult online and offline resources

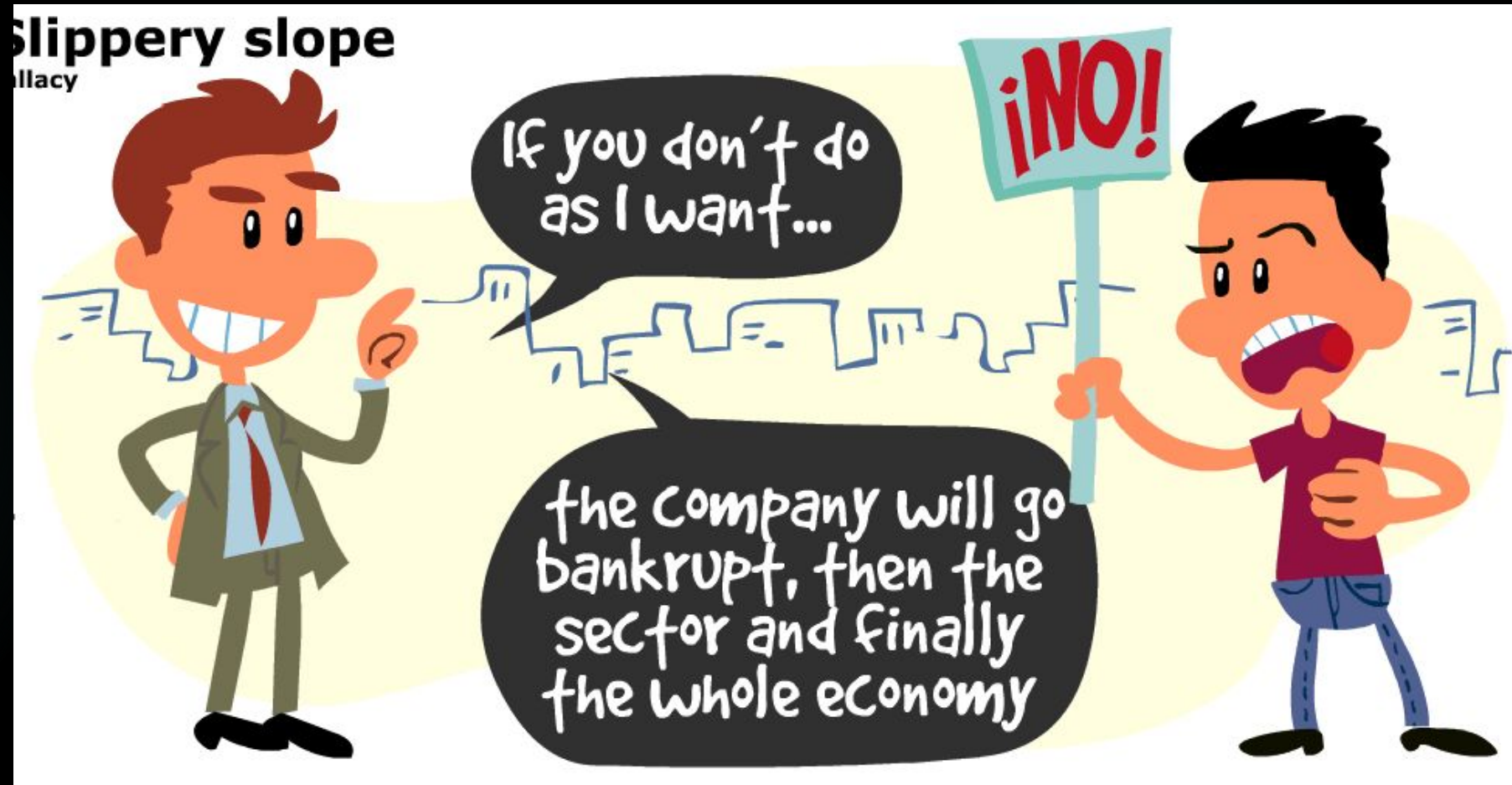
Types of Logical Fallacies

- **Fallacies of Relevance**
 - These fallacies appeal to evidence or examples that are irrelevant to the argument at hand.
 - **“Bandwagon Approach”**
 - “It must be cool because everyone is doing it...”



Types of Logical Fallacies

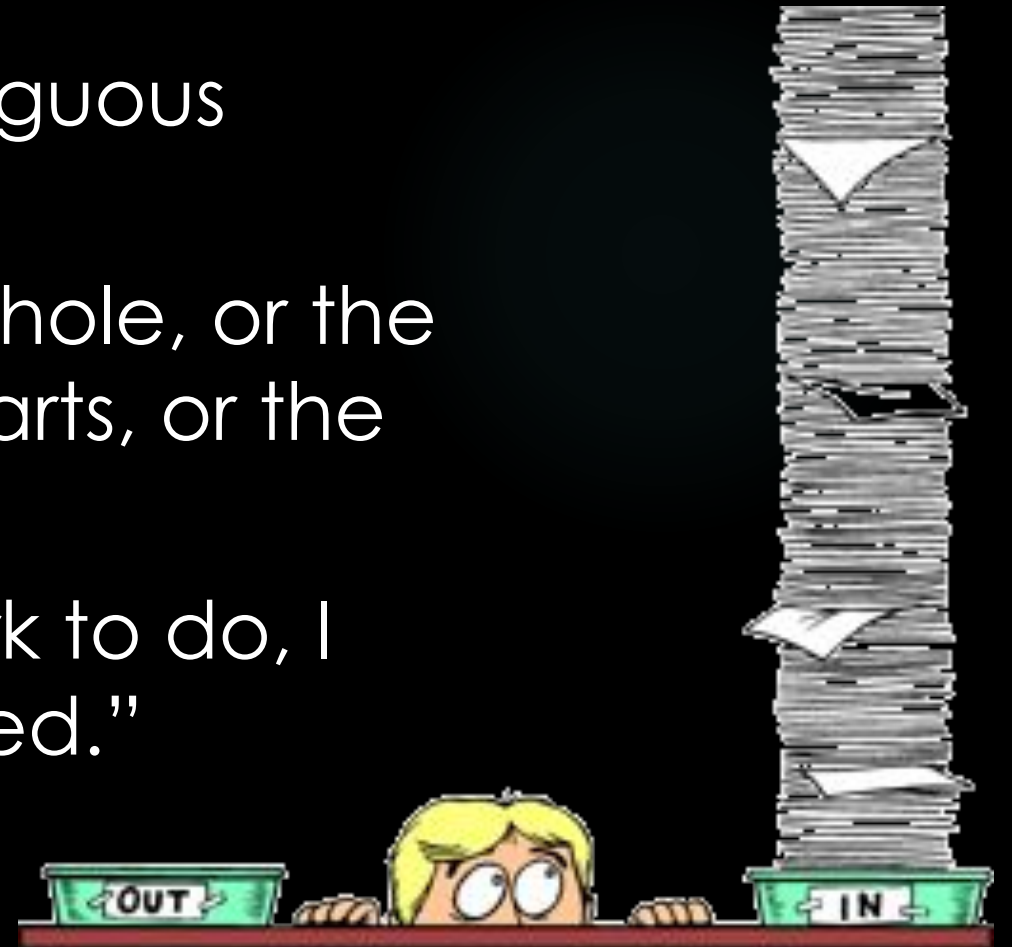
- **Component Fallacies**
 - Component fallacies are errors in the *process* of reasoning.
 - “Slippery Slope”



Types of Logical Fallacies

- **Fallacies of Ambiguity**

- These errors occur with ambiguous (unclear) words or phrases.
- **Division**: what is true of the whole, or the group, must be true of the parts, or the members
 - “I have so much homework to do, I won’t even try to get started.”



Types of Logical Fallacies

- Fallacies of Omission
 - - Material is simply left out
 - - “Stacking the Deck”
 - - “It’s impossible to write a bad essay or exam when there are such fantastic instructors in the English department!”



Appeal to Authority

- Cites an authority who is not qualified to have an expert opinion.
- cites an expert by hearsay only.
- One of the most common fallacies that comes up in advertising is the Appeal to Authority. Just because somebody famous has an opinion, that doesn't make it true!

Appeal to Authority Examples



- ▶ Ex: "Firemen support Jones as the best choice for our town's future."

(Firemen would be experts only on the town's fire safety.)



- ▶ One of the most common fallacies that comes up in advertising is the Appeal to Authority. Just because somebody famous has an opinion, that doesn't make it true!

Appeal to (False) Authority ¹³

**Asserts a claim is true
based on the position of an assumed authority**

"My friend, who is a nurse,
says vaccines cause autism.
Therefore, vaccines
cause autism"

"The senator says climate
change is a hoax.
Therefore, climate change
is a hoax."

"An actress says eating
cheese causes acne.
Therefore, cheese
causes acne."

Note: Citing actual experts is not fallacious!

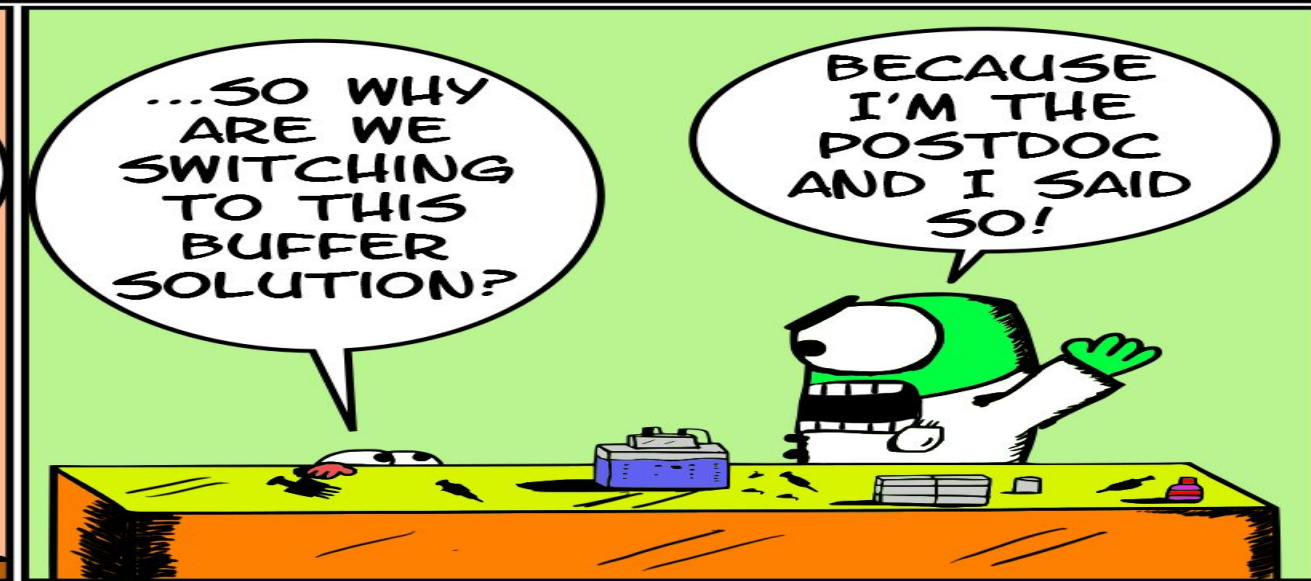


Argumentum ad Verecundiam – Appeal to authority

THE UPTURNED MICROSCOPE PRESENTS Logical Fallacies in the Lab

APPEAL TO AUTHORITY

ASSUMING A CLAIM IS TRUE BECAUSE
AN AUTHORITY SAYS IT IS.



Appeal to Force

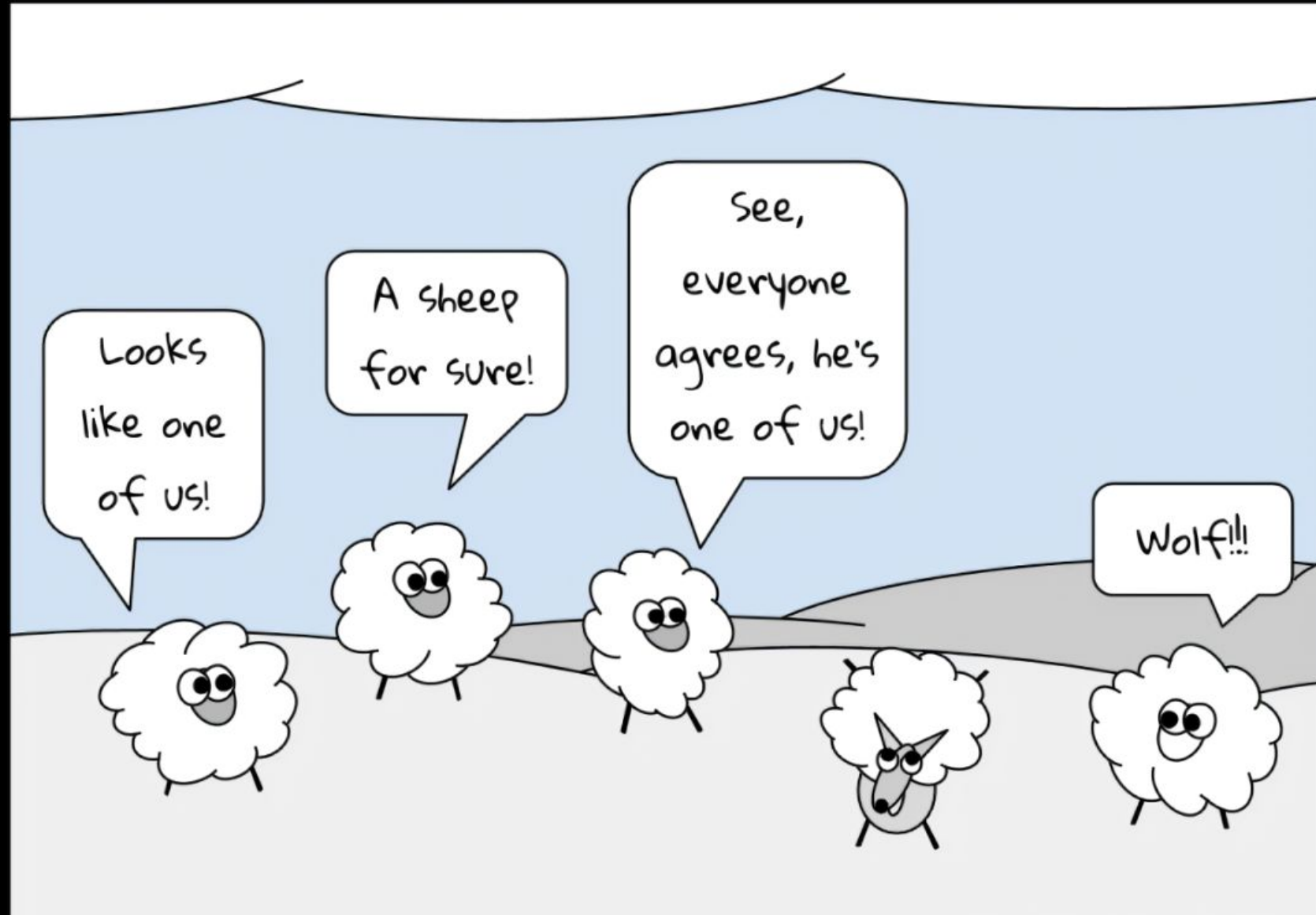
- predicts dangerous outcomes if you follow a course other than the speaker's.
- Ex: "This kind of economic policy will lose you your job - and hurt your children's future."
- *(Is there evidence that it might actually build prosperity and bring additional jobs?)*

Bandwagon (appeal to popularity)

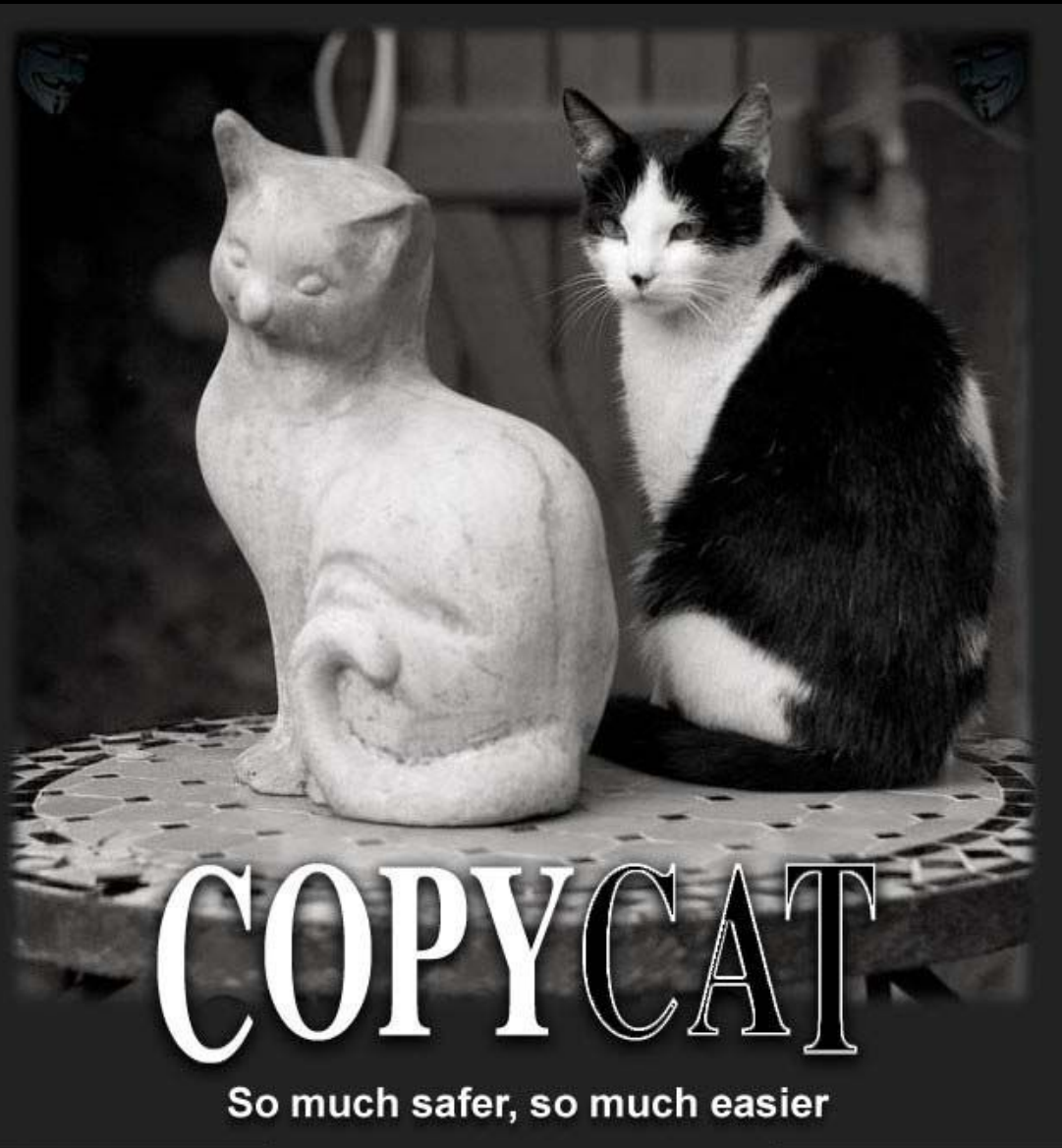
- Holds an opinion to be valuable because large numbers of people support it.
- people are encouraging you to “jump on the bandwagon.”
Everybody else is doing it! All the cool kids are doing it! Don't you want to be like everybody else?
- Ex: "Polls show that Americans prefer their current health care system."
- *(Are there options? Could a majority be missing the boat?)*

More examples...

Bandwagon
fallacy –
Argumentum
ad populum



Bandwagon Examples



Ad Hominem (attacking a person)

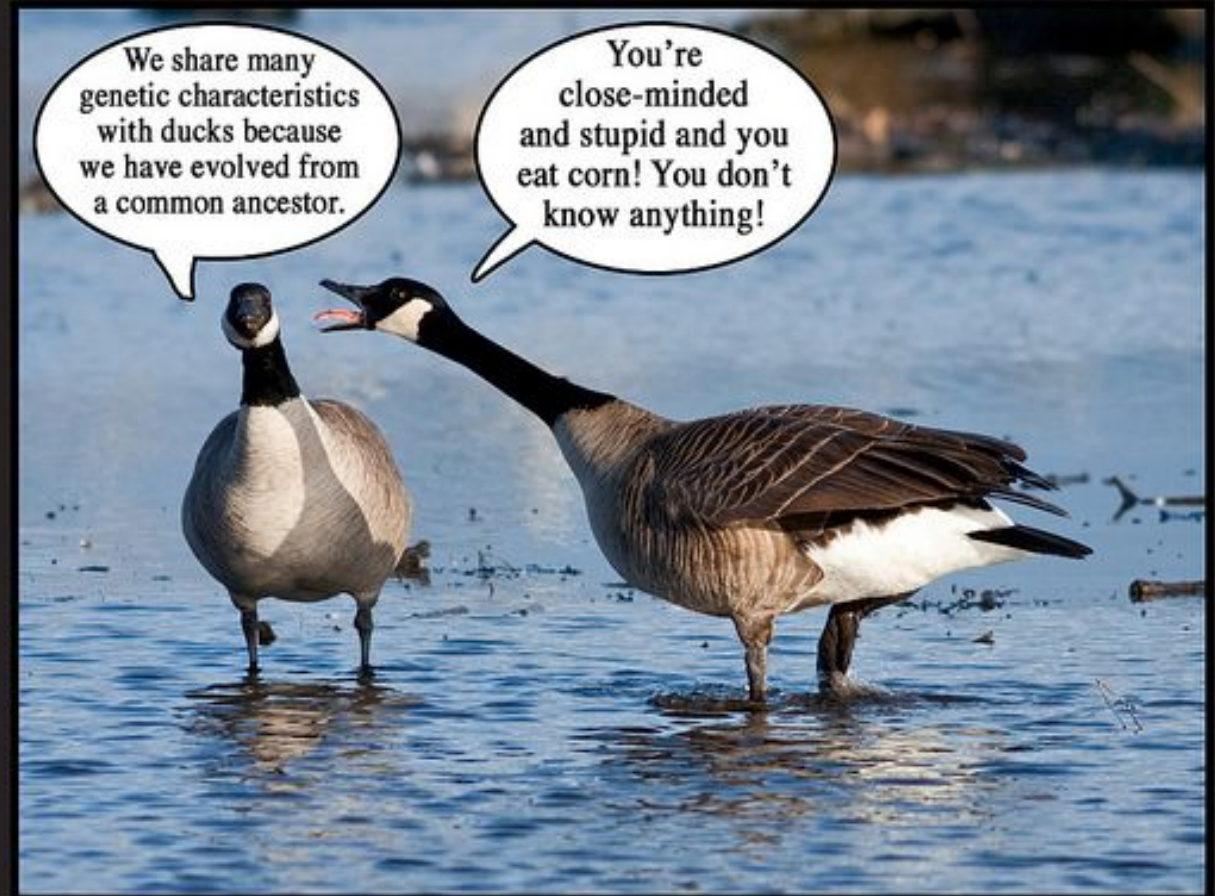
- Literally, ad hominem means “against the person.”
- attacks the person making the argument instead of the argument.
- attacks the person making the argument because of those with whom he associates.
- insinuates that the person making the argument would stand to gain by it.

Ad Hominem Examples

DEBATE STRATEGY: WIN ARGUMENTS
WITH AD HOMINEM ATTACKS



Logical Fallacies



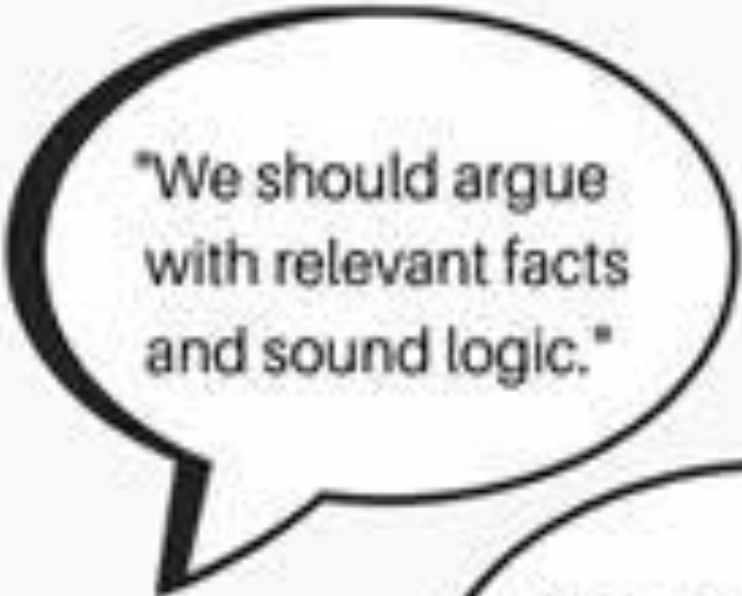
The Ad Hominem

Ad Hominem

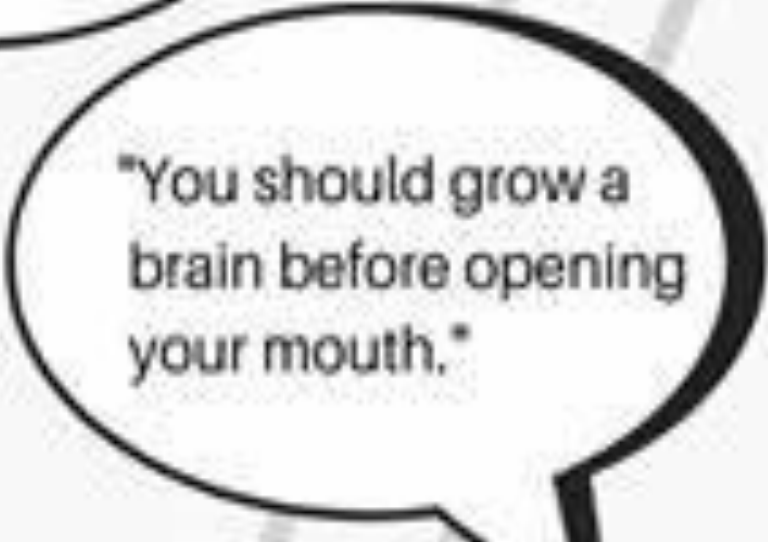
231

The Abusive Fallacy

An abusive attack against someone making an argument, instead of addressing the argument itself.



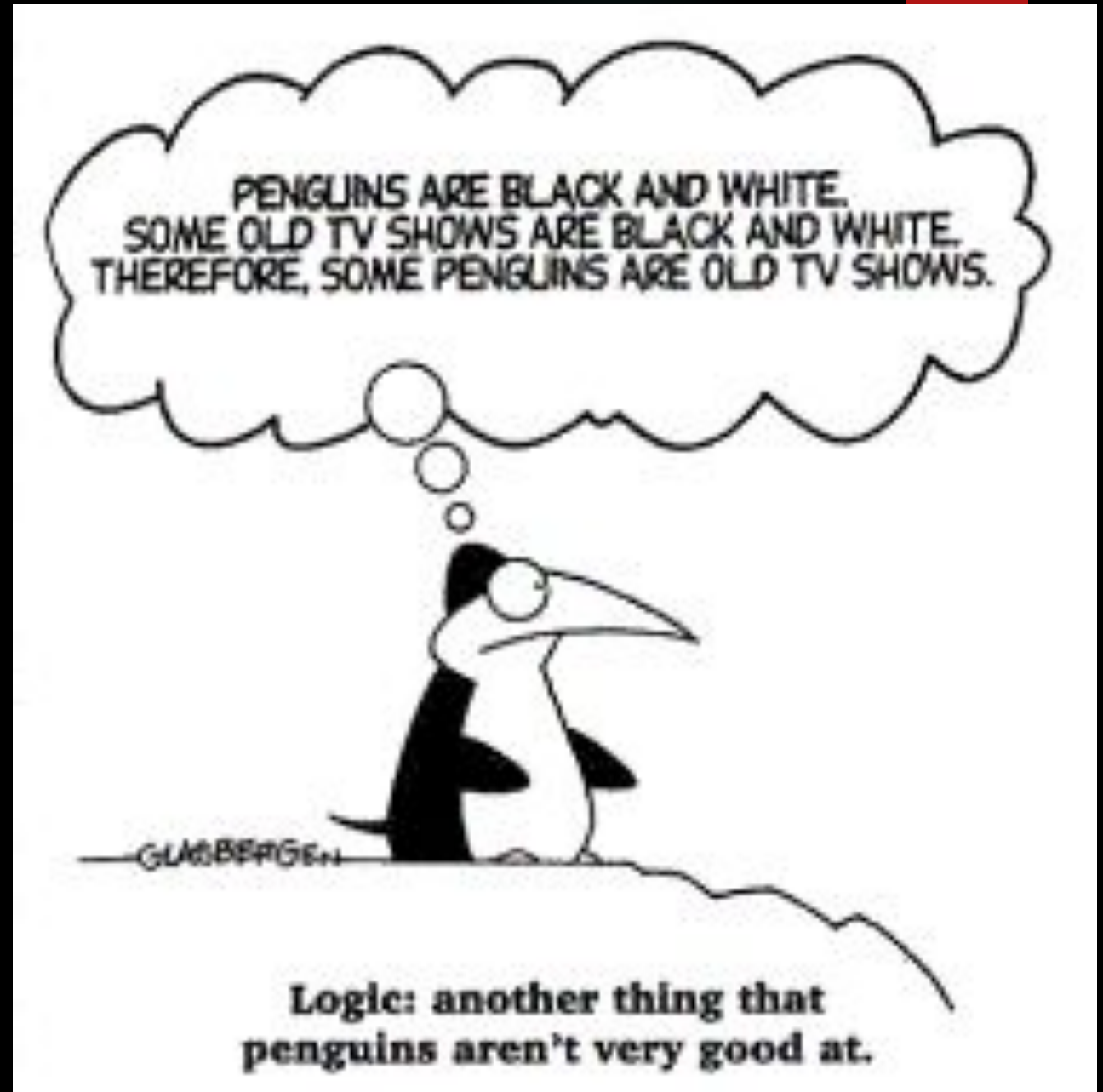
"We should argue with relevant facts and sound logic."



"You should grow a brain before opening your mouth."

Non Sequitur

- An invalid argument
- An argument whose conclusion does not follow from its premises



Loaded Language

- uses words that have a secondary, negative meaning in addition to their primary descriptive meaning.
- A word or phrase is "loaded" when it has a secondary, evaluative meaning in addition to its primary, descriptive meaning. When language is "loaded", it is loaded with its evaluative meaning. A loaded word is like a loaded gun, and its evaluative meaning is the bullet.
- Ex: "He is the 'welfare candidate'."
- *(Supporting entitlements is different from championing welfare.)*

Loaded Language Examples

- Often, loaded language exists as a substitute for other words or phrases, one more negative or positive than the other depending on circumstance.
- Some examples include:
 - Bureaucrat vs. public servant
 - Pro-death vs. pro-choice
 - Regime vs. government
 - Elitist vs. expert
 - Infanticide or child murder vs. abortion
 - Put up with vs. tolerate
 - Put at a loss vs. bewilder

Loaded Question



25

Example

"So you are going to vote for that incompetent candidate?"

Definition

A question containing an implicit assumption that is unverified or controversial.

Overgeneralizations

Overgeneralizations – also called “sweeping statements”, are broad universal statements based on only one or a few facts

Now, use your Chromebooks to find more examples of these. Share with the class.

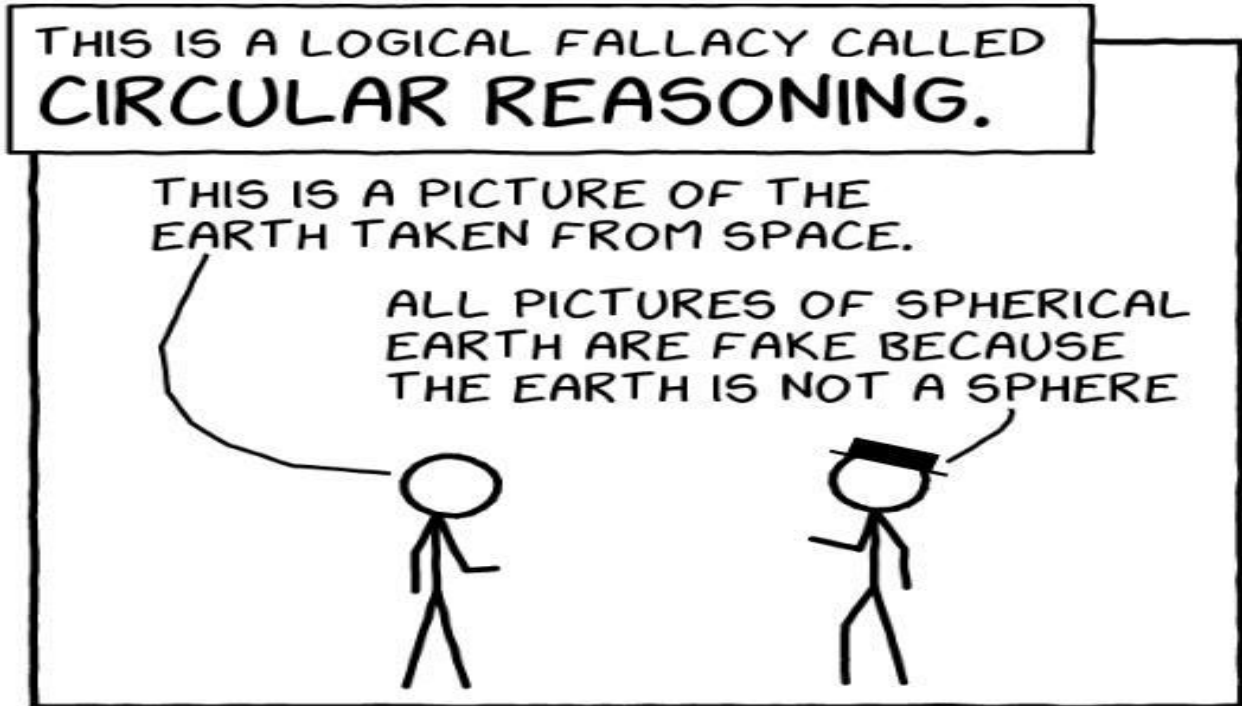
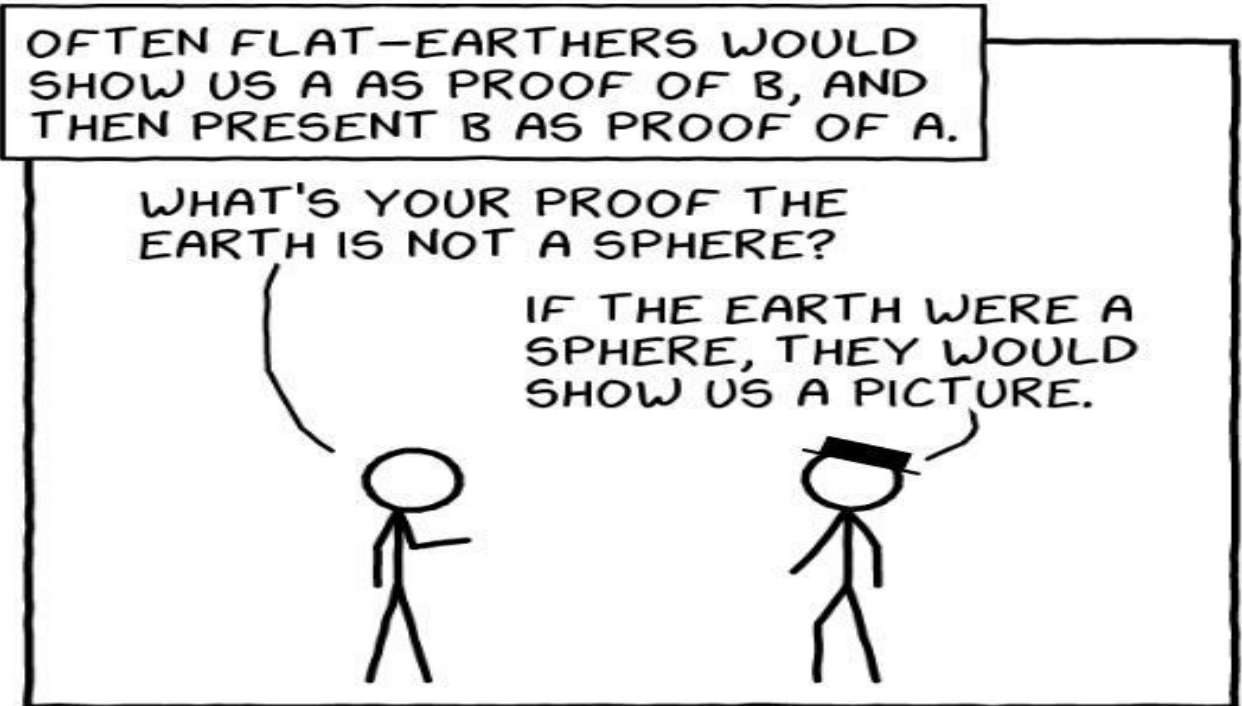
- Women make bad bosses.
- Don't make judgments based on insufficient evidence.**
 - Politicians are crooked.
- Don't assume that all members of a group have the qualities of some.**
 - British people are very cold and uptight.
- Never use “all” or “none” statements.**
 - African-Americans can sing beautifully.

The Hasty Generalization Fallacy

A hasty generalization is a conclusion that is not logically justified by sufficient (or sufficiently unbiased) evidence.



The fallacy of **circular reasoning**: presenting A as proof of B, and also B as proof of A, creating a circle in reasoning where no useful information is being shared.



DISCLAIMER: UNRELATED TO XKCD, CREATED USING CMX.IO

Flat-Earthers often use **circular reasoning** to defend an otherwise indefensible position. As an example, they would assume all pictures of spherical Earth are 'faked' because it is impossible to take such pictures if Earth is flat. But they would take the 'lack of real photos of the Earth' as proof that the Earth is not a sphere. Nothing can be concluded from such a circle in reasoning.

Circular Reasoning – Begging the question

28

Three thieves are arguing about dividing seven pearls which are worth a fortune. One of them hands the man on his right-hand side two pearls, and two to the man on his left-hand side.

“I,” he says, “shall keep three.”

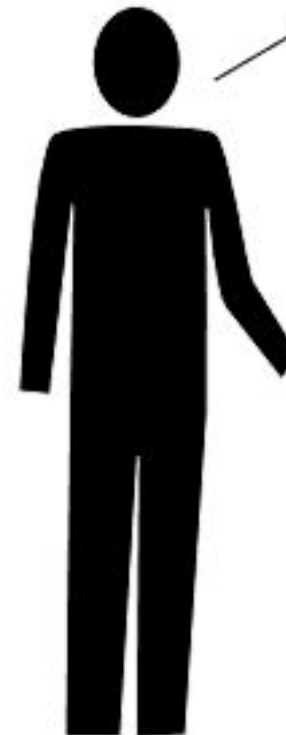
The man on his right says: “Why should you keep three?”

“Because I’m the leader.”

“Oh, but how come you’re the leader?”

“Because I’ve got more pearls.”

Begging the Question - When a premise in an argument assumes the conclusion to be correct.



I said "I am always right"
Because I said it, it must be right
Conclusion: I am always right

When a series of assumptions pretend to be an argument.

EXAMPLE:

Wife: I'd rather have a dog than a cat.

Husband: Why do you hate cats?



Straw Man

**Misrepresents someone's argument
to make it easier to dismiss**

"We should eat less beef.
Raising cows requires
a lot of water and land,
and emits a lot of carbon."

"You want
everyone to be a
vegetarian?!?!"

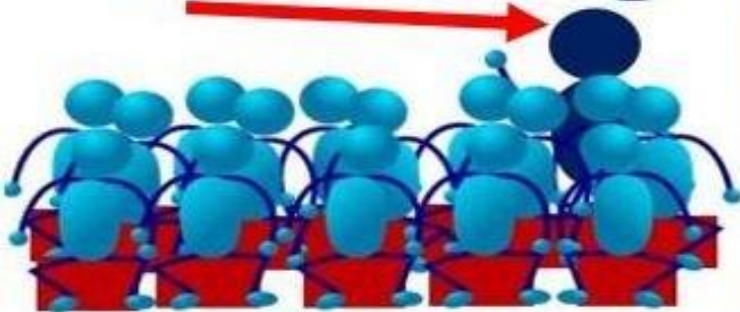


Fallacy of Composition

30

Arises when somebody infers that something applies to the whole because it is true to part of the whole.

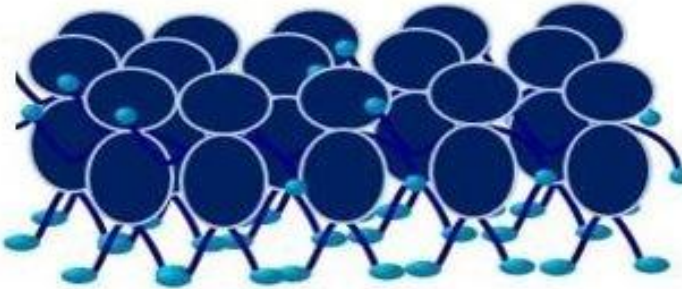
One standing



If I stand, I can see better.

Fallacy of Composition

All standing



If we all stand, we can all see better.

Example

"If I leave home earlier in the morning, I can avoid the traffic jam. Therefore, if everyone leaves home earlier in the morning, everyone will avoid the traffic jam."

Fallacy of Division

31

Example

"Trees are visible, and they are made of atoms. Therefore, atoms are also visible."

Definition

This logical fallacy occurs when someone argues that something which is true of the whole, must also be true of each part of the whole

America is the fattest country in the world.
Therefore, all Americans are fat.

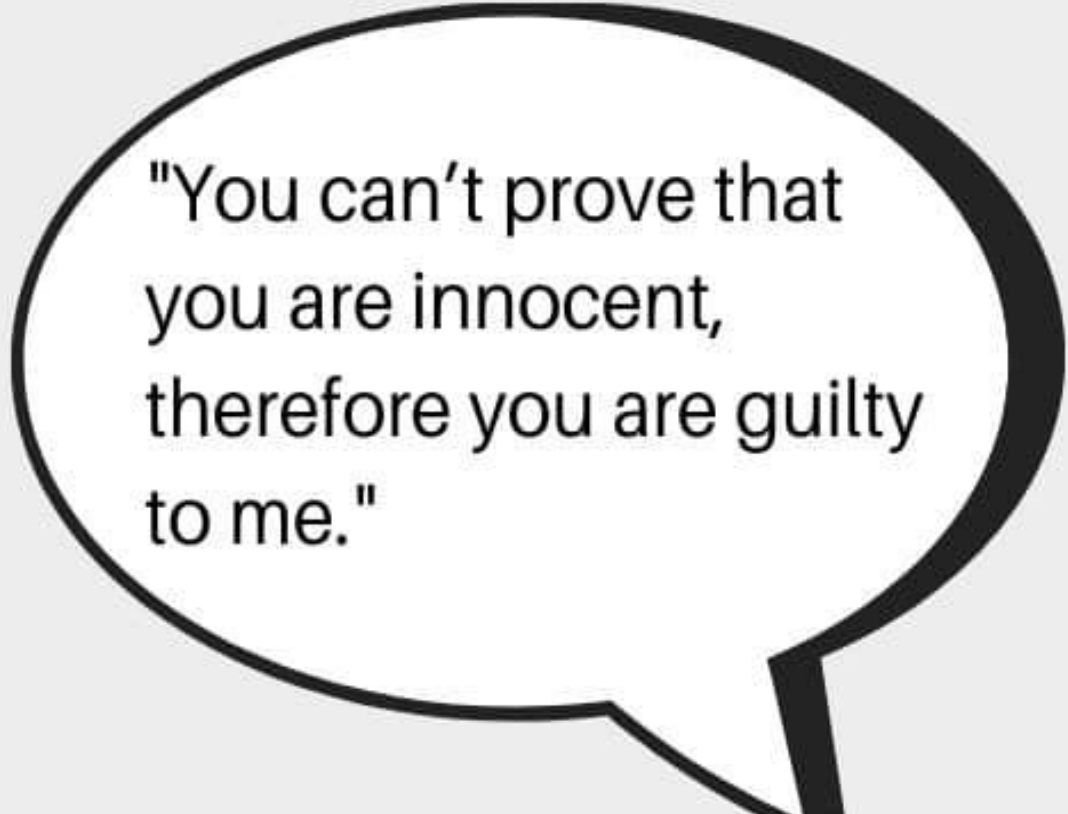
Appeal to Ignorance

32

Definition

This logical fallacy occurs when someone claims that a conclusion must be true if it hasn't been proven false, or false if it hasn't been proven true.

Example



"You can't prove that you are innocent, therefore you are guilty to me."

The Burden of Proof ³³

The person making the claim bears the burden



If you're going to claim that scientists are lying, doctors are being paid off, there is a global conspiracy, etc. the burden is on you to prove your claim.

Post Hoc (cause and effect)

- Claims that because a second event occurred after a first one, the first is the cause of the second.
- Involves attributing a cause and effect relationship without adequate evidence. (Which is similar to a hasty generalization).
- Ex: My car was running fine until Jimmy borrowed it. Now it makes a funny noise. He must have done something to it.
- Ex: “Smith became mayor two years ago, and as soon as he was in office, twenty downtown stores closed.”
- *(Did Smith’s policies have anything to do with the store closures, or did a Wal-Mart come to town?)*

Class Activity

35

- Use your Chromebooks and find examples of **five** different fallacies that we discussed today.



Logical Fallacy Practice – Activity 2

- Identify and explain the logical fallacy in the following statements:
 - Unless you can close your eyes to abuse, write a check to save this puppy.
 - Both of my parents smoked all their lives, and they lived into their eighties, so cigarettes can't really be that bad for you.
 - Don't ever gamble! Once you start, you won't be able to stop, and you'll end up bankrupt!
 - People from big cities are not as friendly as those from small towns.
 - He can't be a great athlete; he isn't always honest with people.

In conclusion, always be on the lookout for faulty reasoning!

37

If you read this PowerPoint, you are very very logical and fallacy-aware!

Congratulations!

Exit ticket and reflection

Can you think of a time when you or somebody you know used a logical fallacy?

