Critical Thinking & Reasoning: Understanding Fallacies

When we form arguments or examine others' arguments, we need to be cognizant of possible fallacies. A ***fallacy*** can be defined as a flaw or error in reasoning. At its most basic, a logical fallacy refers to a defect in the reasoning of an argument that causes the conclusion(s) to be invalid, unsound, or weak. The existence of a fallacy in a deductive argument makes the entire argument invalid. The existence of a fallacy in an inductive argument weakens the argument but does not invalidate it.

It is important to study fallacies so you can avoid them in the arguments you make. Studying fallacies also provides you with a foundation for evaluating and critiquing other arguments as well. Once you start studying and thinking about fallacies, you'll find they are everywhere. You could say that we live in a fallacious world!

The study of fallacies can be dated back to the start of the study of logic. In ancient Greece, Aristotle classified fallacies into two categories—linguistic and non-linguistic. Within these two categories, he identified 13 individual fallacies. Through time we have reclassified fallacies using various typologies and criteria. For our purposes, we will focus on formal and informal fallacies.

- First, fallacious arguments are very common and can be quite persuasive, at least to the casual reader or listener. You can find dozens of examples of fallacious reasoning in newspapers, advertisements, and other sources.
- Second, it is sometimes hard to evaluate whether an argument is fallacious. An argument might be very weak, somewhat weak, somewhat strong, or very strong. An argument that has several stages or parts might have some strong sections and some weak ones.

Logical fallacies

Hasty Generalization

Definition: Making assumptions about a whole group or range of cases based on a sample that is inadequate (usually because it is atypical or just too small).**Example**: "My roommate said her philosophy class was hard, and the one I'm in is hard, too. All philosophy classes must be hard!"

Missing the Point

Definition: The premises of an argument do support a particular conclusion--but not the conclusion that the arguer draws. **Example**: "The seriousness of a punishment should match the seriousness of the crime. Right now, the punishment for drunk driving may simply be a fine. But drunk driving is a very serious crime that can kill innocent people. So, the death penalty should be the punishment for drunk driving."

Post hoc (false cause)

This fallacy gets its name from the Latin phrase "*post hoc, ergo propter hoc*," which translates as "after this, therefore because of this."

Definition: Assuming that because B comes after A, A caused B. Of course, sometimes one event really does cause another one that comes later--for example, if I register for a class, and

my name later appears on the roll, it's true that the first event caused the one that came later. But sometimes two events that seem related in time aren't really related as cause and event. That is, correlation isn't the same thing as causation. **Examples**: "President Jones raised taxes, and then the rate of violent crime went up. Jones is responsible for the rise in crime. “

Slippery Slope

Definition: The arguer claims that a sort of chain reaction, usually ending in some dire consequence, will take place, but there's really not enough evidence for that assumption. The arguer asserts that if we take even one step onto the "slippery slope," we will end up sliding all the way to the bottom; he or she assumes we can't stop halfway down the hill. **Example**: "Animal experimentation reduces our respect for life. If we don't respect life, we are likely to be more and more tolerant of violent acts like war and murder. Soon our society will become a battlefield in which everyone constantly fears for their lives. It will be the end of civilization. To prevent this terrible consequence, we should make animal experimentation illegal right now."

Weak Analogy

Definition: Many arguments rely on an analogy between two or more objects, ideas, or situations. If the two things that are being compared aren't really alike in the relevant respects, the analogy is a weak one, and the argument that relies on it commits the fallacy of weak analogy. **Example**: "Guns are like hammers--they're both tools with metal parts that could be used to kill someone. And yet it would be ridiculous to restrict the purchase of hammers--so restrictions on purchasing guns are equally ridiculous."

Appeal to Authority

Definition: Often we add strength to our arguments by referring to respected sources or authorities and explaining their positions on the issues we're discussing. If, however, we try to get readers to agree with us simply by impressing them with a famous name or by appealing to a supposed authority who really isn't much of an expert, we commit the fallacy of appeal to authority. **Example**: "We should abolish the death penalty. Many respected people, such as actor Guy Handsome, have publicly stated their opposition to it."

Appeal to Pity

Definition: The appeal to pity takes place when an arguer tries to get people to accept a conclusion by making them feel sorry for someone. **Example**: "I know the exam is graded based on performance, but you should give me an A. My cat has been sick, my car broke down, and I've had a cold, so it was hard for me to study

Appeal to Ignorance

Definition: In the appeal to ignorance, the arguer basically says, "Look, there's no conclusive evidence on the issue at hand. Therefore, you should accept my conclusion on this issue." **Example**: "People have been trying for centuries to prove that God exists. But no one has yet been able to prove it. Therefore, God does not exist." Here's an opposing argument that commits the same fallacy: "People have been trying for years to prove that God does not exist. But no one has yet been able to prove it. Therefore, God exists."

Straw Man

Definition: One way of making our own arguments stronger is to anticipate and respond in advance to the arguments that an opponent might make. The arguer sets up a wimpy version of the opponent's position and tries to score point by knocking it down. **Example**: "Feminists want to ban all pornography and punish everyone who reads it! But such harsh measures are surely inappropriate, so the feminists are wrong: porn and its readers should be left in peace."

Red Herring

Definition: Partway through an argument, the arguer goes off on a tangent, raising a side issue that distracts the audience from what's really at stake. Often, the arguer never returns to the original issue. **Example**: "Grading this exam on a curve would be the fairest thing to do. After all, classes go more smoothly when the students and the professor are getting along well." Let's try our premise-conclusion outlining to see what's wrong with this argument:

a. Premise: Classes go more smoothly when the students and the professor are getting along well.
b. Conclusion: Grading this exam on a curve would be the fairest thing to do.

False Dichotomy

Definition: In false dichotomy, the arguer sets up the situation, so it looks like there are only two choices. The arguer then eliminates one of the choices, so it seems that we are left with only one option: the one the arguer wanted us to pick in the first place. **Example**: "Caldwell Hall is in bad shape. Either we tear it down and put up a new building, or we continue to risk students' safety. Obviously, we shouldn't risk anyone's safety, so we must tear the building down."

Begging the Question

Definition: A complicated fallacy, an argument that begs the question asks the reader to simply accept the conclusion without providing real evidence the argument either relies on a premise that says the same thing as the conclusion (which you might hear referred to as "being circular" or "circular reasoning"), or simply ignores an important (but questionable) assumption that the argument rests on. Sometimes people use the phrase "beg the question" as a sort of general criticism of arguments, to mean that an arguer hasn't given very good reasons for a conclusion, but that's not the meaning we're going to discuss here. **Examples**: "Active euthanasia is morally acceptable. It is a decent, ethical thing to help another human being escape suffering through death." Let's lay this out in premise-conclusion form:

c. Premise: It is a decent, ethical thing to help another human being escape suffering through death.
d. Conclusion: Active euthanasia is morally acceptable.

Equivocation

Definition: Equivocation is sliding between two or more different meanings of a single word or phrase that is important to the argument. **Example**: "Giving money to charity is the right thing to do. So, charities have a right to our money."

The Bandwagon Fallacy

Just because a significant population of people believe a proposition is true, doesn't automatically make it true. Popularity alone is not enough to validate an argument, though it's often used as a standalone justification of validity. Arguments in this style don't take into account whether or not the population validating the argument is actually qualified to do so, or if contrary evidence exists.

While most of us expect to see bandwagon arguments in advertising (e.g., "three out of four people think X brand toothpaste cleans teeth best"), this fallacy can easily sneak it's way into everyday meetings and conversations.

Example:

The majority of people believe advertisers should spend more money on billboards, so billboards are objectively the best form of advertisement.

The Slothful Induction Fallacy

Slothful induction is the exact inverse of the hasty generalization fallacy above. This fallacy occurs when sufficient logical evidence strongly indicates a particular conclusion is true, but someone fails to acknowledge it, instead attributing the outcome to coincidence or something unrelated entirely.

Example

Even though every project Brad has managed in the last two years has run way behind schedule, I still think we can chalk it up to unfortunate circumstances, not his project management skills.

The Correlation/Causation Fallacy

If two things appear to be correlated, this doesn't necessarily indicate that one of those things irrefutably *caused* the other thing. This might seem like an obvious fallacy to spot, but it can be challenging to catch in practice -- particularly when you *really* want to find a correlation between two points of data to prove your point.

Example:

Our blog views were down in April. We also changed the color of our blog header in April. This means that changing the color of the blog header led to less views in April.

The Anecdotal Evidence Fallacy

In place of logical evidence, this fallacy substitutes examples from someone's personal experience. Arguments that rely heavily on anecdotal evidence tend to overlook the fact that one (possibly isolated) example can't stand alone as definitive proof of a greater premise.

Example:

One of our clients doubled their conversions after changing all their landing page text to bright red. Therefore, changing all text to red is a proven way to double conversions.

The *Tu quoque* Fallacy

The *tu quoque* fallacy (Latin for "you also") is an invalid attempt to discredit an opponent by answering criticism with criticism -- but never actually presenting a counterargument to the original disputed claim.

In the example below, Lola makes a claim. Instead of presenting evidence against Lola's claim, John levels a claim against Lola. This attack doesn't actually help John succeed in proving Lola wrong, since he doesn't address her original claim in any capacity.

Example:

Lola: *I don't think John would be a good fit to manage this project, because he doesn't have a lot of experience with project management.*

John: *But you don't have a lot of experience in project management either!*

Argument and Aims of Arguments

Aims Of an Argument

The argument is not in itself an end or a purpose of communication. It is rather a means of discourse, a way of developing what we have to say. We can identify four primary aims or purposes that argument helps us accomplish:

- Inquiry
- Conviction
- Persuasion
- Negotiation

Arguing to Inquire: *Forming our opinions or questioning those we already have.*

Examples: Classroom discussions; journal writing; exploratory essays; letters; late-night bull sessions in a dorm.

Arguing to Convince: *Gaining assent from others through case-making.*

Examples: a lawyer's brief; newspaper editorials; case studies; most academic writing

Arguing to Persuade: *Moving others to action through rational, emotional, personal, and stylistic appeals.*

Examples: Political speeches, sermons, advertising

Arguing to Negotiate: *Exploring differences of opinion in the hope of reaching agreement and/or cooperation.*

Examples: Diplomatic negotiations, labor relations, documents in organizational decision-making; essays seeking resolution of conflict between competing parties; also frequent in private life when dealing with disagreements among friends and family members.