

# **Business Logic**

## **Lecture 7: Fallacy Part 1**

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## Lecture Learning Objectives:

At the end of the lecture, you will be able to:

1. Understand the nature of fallacies
2. Distinguish the different categories of fallacy
3. Analyze statements that contain different kinds of fallacy.
4. Differentiate the types of fallacy.

### The Nature of Fallacies

The antithesis of truth is called **error**. **Truth** is the aim and goal of both science and philosophy, and truth can be achieved only through accurate thinking. It is the ultimate goal of logic to supply the mind with the knowledge of the laws of thought and the rules of correct inferential thinking, so that the mind can proceed with ease, order, and precision in its pursuit of truth. These laws and rules have now been examined and established. Knowledge of and familiarity with their meanings should help the mind to avoid the more glaring errors which result from a violation of the fundamental forms in which the mind casts its thoughts in the formulation of arguments. **Formal errors** can occur far less frequently in the case of a mind instructed in the science and art of logic. Material errors are more insidious by nature. Such error in logic is called **fallacy**.

A **Fallacy** is a deceptive argument. It is an argument that seems to be conclusive but is actually not conclusive. Its sequence seems to be valid but is actually invalid,. Also, its premises may seem to be true but are actually false.

The term **fallacy** is derived from the Latin word “**fallo**”. It means, etymologically, “I deceive”. Sometimes it is applied to ambiguous statements that are not actually parts of an argument. An intended fallacy is traditionally called “**sophism**”. It gets this name because it was a favorite device of the ancient **Greek Sophists**, a school of philosophers who claimed they had all the answers to the riddles of life.

There are many advantages in knowing fallacies. In the **first place**, the unique ability to call a fallacy by name will give a person a greater advantage over an opponent in debate and argumentation. More often than not, a person unfamiliar with fallacies will have a vague suspicion that an argument has an inherent defect or may have some essential flaw but still cannot say exactly what is wrong with it. A person familiar with fallacies, on contrary, can name the fallacy easily and, in the process, can protect himself from embarrassment and from abusive sophists.

In the **second place**, the valid forms of inference can best be shown and explained by contrasting them with invalid ones. In a parallel vein, a **physician** must study diseases if he is to promote health; a **lawyer** must know the nature of crimes in order to help maintain order in society; so, too, a **logician** whose aim is to attain correct inferential thinking must also study the pathology of thought. One cannot think correctly unless he

avoids thinking incorrectly. One must therefore, study fallacy in order to avoid it and, thus, avoid the pitfalls of incorrect thinking.

In the **third place**, mastery in the recognition of fallacies will enable one to apply the principles of logic to everything one reads or hears. It also puts one on guard against the more common sources of deception. Books, the print and broadcast media and speeches are full of fallacies. If one is alert enough in identifying them, he is less likely to be duped.

In the **fourth place**, the study of fallacies will provide the occasion for a review of much of the lessons concerning the rudiments of logic. We should not treat fallacy as if it were an island by itself; it should be considered as a sub-system within a system. After all, **fallacies** are intimately connected with the other parts of logic.

**Lastly**, fallacies serve as danger signals to warn us of injudicious reasoning. The labels for fallacies are to be regarded as danger signals so erected to keep us away from the quagmire of invalid reasoning. Familiarity with these errors in logic can assist us from being deceived by them.

In this and the following lecture, we consider various techniques for evaluating non deductive arguments. We begin with the **study of fallacies**. The study is informal in style but augments our intuition with a general account of the most common mistakes of ordinary reasoning.

**Fallacies** (from the Latin verb fallere meaning “to deceive”) are mistakes in arguments that affect their cogency. **Fallacious arguments** are often deceptive because they superficially appear to be good arguments, but deception is not a necessary condition of a fallacy. Whenever we reason invalidly or irrelevantly, accept premises we should not, or fail to use available facts, we commit a fallacy.

Again, **fallacies** are flaws in arguments. As such they deteriorate the points put forward by arguments. **Fallacious statements** are deceitful in presentation. They show semblance of regularity, but this is the case to make them look acceptable. Overall, fallacies are manipulative and to an unthinking mind, a trap that leads to wrong judgment. It is the ability to recognize fallacies that permits the creation of strong arguments and the avoidance and correction of misleading and wrong ones.

Undetected propagandas, misleading reports and fraudulent presentations of facts may result from the deliberate use of fallacies. On the other hand, the unintended use and appreciation of the same may unwittingly result to erroneous decisions and assessments of possibilities.

Fallacies come in many forms and are with a great number of classifications. There are several rather more popular fallacies. For the purposes of acquiring the basic understanding of what fallacies are, its basic kinds and classifications may be of great relevance.

We study **six classes of fallacies**:

1. **Fallacies of relevance** occur when the premises of an argument have no bearing upon its conclusion and may have a distractive element diverting attention away from this problem.
2. **Circular reasoning** is the fallacy of assuming what we are trying to prove.
3. **Semantic fallacies** result when the language employed to construct arguments has multiple meanings or is excessively vague in a way that interferes with assessment of the argument.
4. **Inductive fallacies** occur when the probability of an argument's conclusion, given its premises, is low, or at least less than the arguer supposes.
5. **Formal Fallacies** occur when we misapply a valid rule of inference or follow a rule which is invalid.
6. Finally, there is a class of mistakes classified as **fallacies** consisting of arguments with **false premises. (false premise fallacies)**. Arguments with false premises commit the fallacy of false premises. Such arguments are valid but not sound. One common instance of this type of fallacy is **false dichotomy**, in which the argument makes the false assumption that only one of a number of alternative holds.

In this lecture, we provide a representative, but not exhaustive, survey of these fallacies. Many logic texts employ Latin expressions to label fallacies; we furnish Latin terms when such usage is customary.

### **FALLACIES OF RELEVANCE**

**Fallacies of relevance** occur when the premises of an argument have no bearing upon its conclusion and are often called **non sequiturs** (meaning “**it does not follow**”). We distinguish a number of fallacies of relevance, but the generic form is the same in each case.

**Fallacies of relevance** are the most numerous and the most frequently encountered. In these fallacies, the premises of the argument are simply not relevant to the conclusion. However, because they are made to appear to be relevant, they may deceive. We will distinguish and discuss:

#### **• R1: The appeal to the populace**

**Appeal to popularity (Argumentum Ad Populum)** is an error committed with the adherence to the idea that what is popular is what is right. Experience tells us that validity of an argument or claim lies not with the number of people accepting it but rather for the intrinsic merit of the matter. **An example** is the idea that “You should try smoking. Most of your friends and peers do.” Smoking may be popular with some groups. It does not mean though that smoking is good.

This variety of way of thinking is frequent. It may be an effectual influential means of soliciting support. The views of the majority may sway the minority. Popular yet health destructive and even financially impractical products are sold in the market using this fallacious appeal. Unqualified and unscrupulous candidates are elected to office only

because of their popularity, not by their ability to improve the scheme of things for the electors.

**Argumentum ad populum** is committed when the disputant evades the real question and appeals to the passions or prejudices of his hearers.

**Ad populum fallacies** (or **appeals to the people**) occur when we infer a conclusion merely on the grounds that most people accept it. This fallacy has the form: "X says that P therefore P" and so is analogous to an appeal to authority, only the X now stands for the opinion of the majority. **Appeals to the people** often encourage the bandwagon effect, relying on peer pressure or social conformity, asking us to join forces with others. Similarly, advertisers often aim their commercial pitch at cognoscenti, those allegedly "in the know" on a particular topic.

This fallacy is sometimes defined as the fallacy committed in making an emotional appeal; but this definition is so broad as to include most of the fallacies of relevance. It is defined more narrowly as the attempt to win popular assent to a conclusion by arousing the feelings of the multitude. **The argument ad populum ("to the populace")** is the baldest of all fallacies, and yet it is one of the most common. It is the instrument on which every demagogue and propagandist relies when faced with the task of mobilizing public sentiment. It is a fallacy because, instead of evidence and rational argument, the speaker (or writer) relies on expressive language and other devices calculated to excite enthusiasm for or against some cause.

**Example:** Sixteen Million people voted for this president, that makes him the best president.

• **R2: The appeal to emotion**

There is an **appeal to pity** when an argument tries to sway opinion by way of the solicitation of grief or sympathy or such other similar strong feelings of compassion. **For instance**, when an interviewer would ask a job applicant why he should be chosen, the latter may say "I need this job. It is only by this that I can support my ailing mother. Without any work, I will not be able to sustain her medication. She has diabetes and cancer."

When asked why one should be accepted for the job he so desires, an applicant-interviewee may impress the job interviewer by enumerating all his good traits as a worker, or his notable track record for work. It is logically and practically improper to convince the employer by playing with his emotional and good side by soliciting pity.

**Ad misericordiam fallacies** (or **appeals to pity**) asks us to excuse or forgive an action on the grounds of extenuating circumstances. An **appeal to pity** may be either legitimate or fallacious, depending on whether or not the allegedly extenuating circumstances are relevant.

One variety of the appeal to emotion that appears with great frequency is the argument ad misericordiam. The Latin word **misericordiam** literally means "**merciful heart**"; this fallacy is the **emotional appeal to pity**.

**Example:** “Please give me a passing grade, my old poor parents are expecting me to graduate this year!”

Logicians give special names to other clusters of fallacious emotional appeals. Thus, one might also distinguish the **appeal to envy (ad invidiam)**, the **appeal to fear (ad metum)**, the **appeal to hatred (ad odium)**, and the **appeal to pride (ad superbium)**. In all of these, the underlying mistake is the argument’s reliance on feelings as premises.

- **R3: The red herring**

A **Red herring** is an extraneous or tangential matter used to divert attention away from the issue posed by an argument. Typically, a **red herring** is irrelevant and contributes nothing to an argument, although it may mislead its audience into thinking otherwise.

The **red herring** is a fallacious argument whose effectiveness lies in distraction. Attention is deflected; readers or listeners are drawn to some aspect of the topic under discussion by which they are led away from the issue that had been the focus of the discussion. They are urged to attend to some observation or some claim that may be associated with the topic, but that is not relevant to the truth of what had originally been in dispute. A red herring has been drawn across the track.

In the world of finance, a **prospectus** issued to attract investors in a company about to go public, which tells much about the company but not the price of its shares, is also called a red herring.

- **R4: The straw man**

It is very much easier to win a fight against a person made of straw than against one made of flesh and blood. If one argues against some view by presenting an opponent’s position as one that is easily torn apart, the argument is fallacious, of course. Such an argument commits the fallacy of the **straw man**.

One may view this fallacy as a variety of the red herring, because it also introduces a distraction from the real dispute. In this case, however, the distraction is of a particular kind: It is an effort to shift the conflict from its original complexity into a different conflict, between parties other than those originally in dispute. So common is this variety of distraction that the pattern of argument that relies on it has long carried its own name: the straw man argument.

**Example:** You are you against death penalty? So, do you think that the lives of murderers and criminals are more important than the lives of their innocent victims?

- **R5: The attack on the person**

**Argumentum Ad Hominem or attacking the person** is an argument that must be confronted by its very merit, and not of the person or the author of the same, Here, the arguer attacks his or her opponent and his defect, lowly stature, or character and the like, (which are irrelevant to the issue) instead of the latter’s very argument itself.

**An example** is the argument that “Carlina, Rose, Marianne and Paola spoke of how women are easily prone to abuse in society. Why should we listen to them? They are bitter. All their husbands left them”. Here, the issue is diverted. The fact that the women here were all left by their husbands does not effectively and validly counter the merit of the claim of how women are prone to abuse.

**Argumentum ad hominem** is committed when the debater befogs the issue, thus evading the arguments of his opponent, and instead directs his attack at the character, personality or belief of his adversary. It is highly unfair for a debater to indulge in personalities. In political campaigns, however, the practice of exposing to the electorate the personal unfitness of a candidate for an elective post is tolerated, if not encouraged, for it is a duty of every citizen of a democracy to prevent the election of men who are venal, corrupt and immoral.

**Ad hominem arguments** try to discredit a claim by attacking its proponents instead of providing a reasoned examination of the claim.

The phrase **ad hominem** translates as “against the person.” An **ad hominem argument** is one in which the thrust is directed, not at a conclusion, but at some person who defends the conclusion in dispute. An important qualification is called for at this point. **Ad hominem arguments** are fallacious (and often unfair to the adversary) because an attack against some person is generally not relevant to the objective merits of the argument that person has put forward. This personalized attack might be conducted in either of two different ways, for which reason we distinguish two major forms of the argument ad hominem: the **abusive** and the **circumstantial** and the other **varieties** of such arguments:

1. **Ad hominem abusive fallacies** attack a person’s age, character, family, gender, ethnicity, social or economic status. Personality, appearance, dress, behavior or professional, political or religious affiliations, and suggest not accepting such a person’s views.

- **Abusive**

One is tempted, in heated argument, to disparage the character of one’s opponents, to deny their intelligence or reasonableness, to question their understanding, or their seriousness, or even their integrity. However, the character of an adversary is logically irrelevant to the truth or falsity of what that person asserts, or to the correctness of the reasoning employed.

**Example:** Of course, it will be hard for you to understand why college education matters? You always got the lowest score in our class!

2. **Circumstantial ad hominem fallacies** (similar to vested interest fallacies) attempt refute a claim by arguing that its proponents endorse two or more conflicting propositions, and so we may disregard one or all of those judgments.

- **Circumstantial**

The circumstances of one who makes (or rejects) some claim have no more bearing on the truth of what is claimed than does his character. The mistake made in the

circumstantial form of the ad hominem fallacy is to treat those personal circumstances as the premise of an opposing argument.

**Example:** Oh, for sure she is in favor of the anti-terror bill! She cannot be a good senator; she's her father's daughter!

3. **Vested interest fallacies** attempt to refute a claim by arguing that its proponents are motivated by the desire to gain something; they suggest that if not for this vested interest, the arguer would hold a different view, and so we should discount their views.
4. **Tu quoque ("you too") fallacies** attempt to refute a claim by attacking its proponent on the grounds that he or she is a hypocrite, upholds a double standard of conduct, or is inconsistent in enforcing a principle, suggesting that the arguer is unqualified to make claim, and we should not accept the claim. But there is an important distinction between a person's words and actions.
5. The **fallacy of guilt by association (or poisoning the well)** attempts to repudiate a claim by attacking not the claim's proponent, but the reputation of those with whom they associate or agree.

All five kinds of ad hominem arguments fallaciously attempt to refute a claim by attacking its proponents. In contrast, **straw man arguments** attempt to refute a claim by confusing it with a less plausible claim (the **straw man**) and then attacking that less plausible claim instead of addressing the original issue. Even a good argument against the less plausible claim is irrelevant to the real issue. arguments

• **R6: The appeal to force**

**Argumentum Ad Baculum** is instead of providing convincing proof for the acceptability of an asserted argument, the threat of actual physical aggression or even psychological violence is employed to forcibly solicit agreement or conformity is here used. **For instance**, the argument that "It would be best that you support his bid for the office, otherwise you may lose all your business enterprises in our district if our candidate wins" is unacceptable. Support for a candidate is gained by convincing all that he is qualified for the job, and not for whatever retaliatory actions may be taken against his political nemeses and their supporters.

Blackmail and even the threat of actual violence have no place in any argument.

**Ad baculum's** (also called **appeals to force or appeals to the stick**) fallaciously attempt to establish a conclusion by threat or intimidation.

It seems odd to suppose that one could hope to establish some proposition as true, or persuade some other person of its truth, by resorting to force. Threats or strong-arm methods to coerce one's opponents can hardly be considered arguments at all. Traditionally, a category of fallacies of this kind has been identified as the **appeal to force**

**or the argument ad baculum (appeal ad baculum means literally “appeal to the stick”!),** and it surely is clear that however expedient force may prove to be, it cannot replace rational methods of argument. “Might makes right” is not a subtle principle, and we all reject it.

**Example:** You are not forced to follow this rule, but one must be prepared to face the consequence though.

• **R7: Missing the point (irrelevant conclusion)**

This fallacy is committed when the disputant brushes aside or ignores the real question at issue and attempts to prove something which has no bearing on the question under discussion.

Aristotle, the first to give a systematic classification of the informal fallacies, explains the fallacy we call **missing the point, or ignoratio elenchi**, as a mistake that is made in seeking to refute another’s argument. The **Latin word elenchi** is derived from a Greek word that means a **“disproof,” or a “refutation.”** An **ignoratio elenchi** is a mistaken refutation, one that goes haywire because the person presenting it does not fully understand the proposition in dispute. He refutes, or tries to refute, a claim other than that which was originally at issue. He misses the point.

**Ignoratio elenchi fallacies (or missing the point)** occur when the premises of an argument warrant a different conclusion than the one the arguer draws. This is particularly problematic if the “real” conclusion contradicts or undermines the one actually argued, or undermines the one actually argued.

**Example:** Somebody asked about the missing funds in an agency, and you reply by pointing out how employees enjoyed the perks and bonuses that they receive

**Exercise 1 Fallacy**

Identify and explain any fallacy in the following statements.

1. The problem of broken family started when girls were allowed to have college degrees, during my time couples seldom separate because men work and woman stay at home.

**Answer:** False cause, there are many reasons for having a broken family, it is wrong to blame it on women having education, there is no proof that having more education means having broken relationships.

2. To the doctors who are complaining of lack of government support, the pandemic is not a time to be worried of an unknown enemy; this is the time to show our patriotism and loyalty to the state.

3. You hate corruption? Oh, c’mon looks who’s talking!

4. A computer is a machine use for computing.
5. This must be best book of 2020 everybody is reading it.
6. I just saw a policeman who beat a minor. I must say all me in uniform are violent and abusive.
7. Someone ask a politician why he barely speaks in the senate floor, his reply was, "less talk less mistake."
8. Andrew is an activist he came from a family of activists.
9. We should give the promotion to Pedro I heard he is the breadwinner in the family.
10. You have to convert to our religion, judgment day is coming!
11. This guy does not understand what poverty is; he came from a rich family.
12. Filipinos are spiritual; thus, the entire universe is spiritual.
13. This commissioner should not be fired; he is an honest man since no one can prove that he is corrupt.
14. Ever since I bought this lucky charm, my business grew beyond compare.
15. If you want to live a happy and blissful life don't get married according to an article published in a magazine.

**Exercise 2:** Identify and explain any fallacy in the following statements

1. Are you still wasting time with all that book-learning at the university?
2. The Bible tells the truth because it's God's word. We know the Bible is God's word because the Bible says so and it tells the truth.
3. You should vote for this candidate because she's intelligent and has much experience in politics.
4. The Equal Rights Amendment was foolish because its feminist sponsors were nothing but bra-less bubbleheads.
5. No one accepts this theory anymore, so it must be wrong.

6. Either you favor a massive arms buildup, or you aren't a patriotic American.
7. The president's veto was the right move. In these troubled times we need decisive leadership, even in the face of opposition. We should all thank the president for his courageous move.
8. Each member of this team is unbeatable, so this team must be unbeatable.
9. My doctor told me to lose weight and give up smoking. But she's an overweight smoker herself, so I can safely ignore her advice.
10. Belief in God is explained in terms of one's need for a father figure; so, it's false.
11. There are scientific laws. Where there are laws there must be a lawgiver. Hence someone must have set up the scientific laws to govern our universe, and this someone could only be God.
12. The lawyer for the defense claims that there's doubt that Smith committed the crime. But I ask, are you going to let this horrible crime go unpunished because of this? Look at the crime; see how horrible it was! So, you see clearly that the crime was horrible and that Smith should be convicted.
13. Free speech is for the common good, since unrestrained expression of opinion is in people's interest.
14. This is a shocking and stupid proposal. Its author must be either a dishonest bum or a complete idiot.
15. Aristotle said that heavy objects fall faster than light ones, so it must be true.
16. Each of these dozen cookies (or drinks) by itself isn't harmful; one little one won't hurt! Hence having these dozen cookies (or drinks) isn't harmful.
17. Before Barack Obama became the Democratic candidate for US president, he ran in a series of primary elections. He noted that he played basketball before the Iowa primary, and then won the vote, while he neglected to play before the New Hampshire primary, and then lost. He concluded (in jest) "At that point I was certain that we had to play on every primary."
18. Only men are rational animals. No woman is a man. Therefore, no woman is a rational animal.

19. I'm right, because you flunk if you disagree with me!

20. The discriminating backpacker prefers South Glacier tents.

**READINGS AND VIDEOS** (Please see the digital copies of the materials.)

**Reading 1** Copi, I., Cohen, C & McMahon, K. (2014). Introduction to Logic Fourteenth Edition. London: Pearson Education Limited

**Reading 2** Van Cleave, M. (2016). Introduction to Logic and Critical Thinking. Retrieved from <https://open.umn.edu/opentextbooks/textbooks/introduction-to-logic-and-critical-thinking>

**Reading 3** Gensler, H. (2010). Introduction to Logic Second Edition. New York: Routledge

**Video 1** Introduction to Fallacies in <https://www.youtube.com/watch?v=M39XcakMDqw>

**Video 2** Fallacy Detective in <https://www.youtube.com/watch?v=Od2cpE7YMSQ>

**LECTURES** (Please refer to the PowerPoint presentations)

**ACTIVITY AND ASSESSMENT**

**Answer Exercise 1 & 2** (Write your answer in a separate sheet of paper)

**REFERENCES:**

**Introduction to Logic**

Irving Copi

Carl Cohen

Kenneth McMahon

14th edition, Pearson Education Limited, 2014

**Logic for Filipinos 3<sup>rd</sup> Edition**

Prisciliano Bauzon, National Bookstore 2013

**Logic**

Nolt, Rohatyn and Varzi McGraw Hill 2012

**Introduction To Logic**

Harry Gensler

2nd Edition New York: Routledge, 2010