

Excerpts from “Debating 101 – Logic Fallacies”

The following definition of a fallacy and all the other materials in this document are excerpts from the notes for a course entitled “Debating 101 – Logic Fallacies.” The name of the author was not available in the web version of the document. Diola Bagayoko, Ph.D., SU system Distinguished Professor of Physics, attests to the accurate description of the fallacies cited herein.

What is a Fallacy?

In order to understand what a fallacy is, one must understand what an argument is. Very briefly, an argument consists of one or more premises and one conclusion. A premise is a statement (a sentence that is either true or false) that is offered in support of the claim being made, which is the conclusion (which is also a sentence that is either true or false).

There are two main types of arguments: deductive and inductive. A deductive argument is an argument such that the premises provide (or appear to provide) complete support for the conclusion. An inductive argument is an argument such that the premises provide (or appear to provide) some degree of support (but less than complete support) for the conclusion. If the premises actually provide the required degree of support for the conclusion, then the argument is a good one. A good deductive argument is known as a valid argument and is such that if all its premises are true, then its conclusion must be true. A good inductive argument is known as a strong (or "cogent") inductive argument. It is such that if the premises are true, the conclusion is likely to be true. **A fallacy is, very generally, an error in reasoning.** This differs from a factual error, which is simply being wrong about the facts. To be more specific, a fallacy is an "argument" in which the premises given for the conclusion do not provide the needed degree of support.

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Appeals to Motives in Place of Support

The fallacies in this section have in common the practice of appealing to emotions or other psychological factors. In this way, they do not provide reasons for belief. The following fallacies are appeals to motive in place of support.

1. Appeal To Force (*Argumentum ad baculum*) / Appeal To Fear / Scare Tactics

DEFINITION: The reader is told that unpleasant consequences will follow if they do not agree with the author.

This fallacy has the following pattern:

1. Y is presented (a claim that is intended to produce fear).
2. Therefore claim X is true (a claim that is generally, but need not be, related to Y in some manner).

This line of "reasoning" is fallacious because creating fear in people does not constitute evidence for a claim.

It is important to distinguish between a rational reason to believe evidence that objectively and logically supports the claim, and a prudential reason to accept the belief because of some external factor (such as fear, a threat, or a benefit or harm that may stem from the belief) that is relevant to what a person values but is not relevant to the truth or falsity of the claim. For example, it might be prudent to not fail the son of your department chairperson because you

fear he will make life tough for you. However, this does not provide evidence for the claim that the son deserves to pass the class.

EXAMPLE: "If you post that Braga is a bad writer, we will delete your post."

PROOF: Identify the threat and the proposition and argue that the threat is unrelated to the truth or falsity of the proposition.

2. Appeal to Consequences (*argumentum ad consequentiam*)

DEFINITION: The author points to the disagreeable consequences of holding a particular belief in order to show that this belief is false.

EXAMPLE: "You must like The Next Generation! If you don't, then you dislike a part of the Star Trek universe!"

PROOF: Identify the consequences to and argue that what we want to be the case does not affect what is in fact the case.

Changing the Subject

The fallacies in this section change the subject by discussing the person making the argument instead of discussing reasons to believe or disbelieve the conclusion. While on some occasions it is useful to cite authorities, it is almost never appropriate to discuss the person instead of the argument.

1. Ad Hominem - Attacking the Person (*argumentum ad hominem*)

DEFINITION: The person presenting an argument is attacked instead of the argument itself. This takes many forms. For example, the person's character, nationality or religion may be attacked. Alternatively, it may be pointed out that a person stands to gain from a favorable outcome. Or, finally, a person may be attacked by association, or by the company he keeps.

Translated from Latin to English, "Ad Hominem" means "against the man" or "against the person."

An Ad Hominem is a general category of fallacies in which a claim or argument is rejected on the basis of some irrelevant fact about the author of or the person presenting the claim or argument. Typically, this fallacy involves two steps. First, an attack against the character of person making the claim, her circumstances, or her actions is made (or the character, circumstances, or actions of the person reporting the claim). Second, this attack is taken to be evidence against the claim or argument the person in question is making (or presenting). This type of "argument" has the following form:

1. Person A makes claim X.
2. Person B makes an attack on person A.
3. Therefore A's claim is false.

The reason why an Ad Hominem (of any kind) is a fallacy is that the character, circumstances, or actions of a person do not (in most cases) have a bearing on the truth or falsity of the claim being made (or the quality of the argument being made).

There are three major forms of Attacking the Person:

a. Ad Hominem (abusive): Instead of attacking an assertion, the argument attacks the person who made the assertion.

EXAMPLE: "You think Kirk is better because you are just stupid."

PROOF: Identify the attack and show that it has nothing to do with the truth or falsity of the proposition being defended.

b. Ad Hominem (circumstantial):

DEFINITION: Instead of attacking an assertion the author points to the relationship between the person making the assertion and the person's circumstances.

A Circumstantial ad Hominem is a fallacy in which one attempts to attack a claim by asserting that the person making the claim is making it simply out of self interest. In some cases, this fallacy involves substituting an attack on a person's circumstances (such as the person's religion, political affiliation, ethnic background, etc.). The fallacy has the following forms:

1. Person A makes claim X.
2. Person B asserts that A makes claim X because it is in A's interest to claim X.
3. Therefore claim X is false.
1. Person A makes claim X.
2. Person B makes an attack on A's circumstances.
3. Therefore X is false.

A Circumstantial ad Hominem is a fallacy because a person's interests and circumstances have no bearing on the truth or falsity of the claim being made. While a person's interests will provide them with motives to support certain claims, the claims stand or fall on their own. It is also the case that a person's circumstances (religion, political affiliation, etc.) do not affect the truth or falsity of the claim. This is made quite clear by the following example: "Bill claims that $1+1=2$. But he is a Republican, so his claim is false."

There are times when it is prudent to be suspicious of a person's claims, such as when it is evident that the claims are being biased by the person's interests. For example, if a tobacco company representative claims that tobacco does not cause cancer, it would be prudent to not simply accept the claim. This is because the person has a motivation to make the claim, whether it is true or not. However, the mere fact that the person has a motivation to make the claim does not make it false. For example, suppose a parent tells her son that sticking a fork in a light socket would be dangerous. Simply because she has a motivation to say this obviously does not make her claim false.

EXAMPLE: "Of course you don't like Picard. You are not British like he is."

PROOF: Identify the attack and show that the circumstances have nothing to do with the truth or falsity of the proposition being defended.

c. Ad Hominem (tu quoque):

DEFINITION: This form of attack on the person notes that a person does not practice what he preaches. This fallacy is committed when it is concluded that a person's claim is false because 1) it is inconsistent with something else a person has said or 2) what a person says is inconsistent with her actions. This type of "argument" has the following form:

1. Person A makes claim X.
2. Person B asserts that A's actions or past claims are inconsistent with the truth of claim X.
3. Therefore X is false.

The fact that a person makes inconsistent claims does not make any particular claim he makes false (although of any pair of inconsistent claims only one can be true - but both can be false). Also, the fact that a person's claims are not consistent with his actions might indicate that the person is a hypocrite, but this does not prove his claims are false.

EXAMPLE: "You are making a stance that I shouldn't attack Kirk. But you say bad things about Picard all the time!"

PROOF: Identify the attack and show that it has nothing to do with the truth or falsity of the proposition being defended.

e. Poisoning the Well

DEFINITION: Another variant of Ad Hominem Circumstantial. This sort of "reasoning" involves trying to discredit what a person might later claim by presenting unfavorable information (be it true or false) about the person. This "argument" has the following form:

Unfavorable information (be it true or false) about person A is presented.

Therefore any claims person A makes will be false.

This sort of "reasoning" is obviously fallacious. The person making such an attack is hoping that the unfavorable information will bias listeners against the person in question and hence that they will reject any claims he might make. However, merely presenting unfavorable information about a person (even if it is true) hardly counts as evidence against the claims he/she might make. This is especially clear when Poisoning the Well is looked at as a form of Ad Hominem in which the attack is made prior to the person even making the claim or claims. The following example clearly shows that this sort of "reasoning" is quite poor.

EXAMPLE: "Don't listen to what he has to say, he is not a Star Trek fan."

PROOF: If the unfavorable information is untrue, you can choose to state the truth. But regardless if the information is true or not: identify the attack and show that it has nothing to do with the truth or falsity of the proposition being defended.

2. Appeal to Authority (*argumentum ad verecundiam*)

DEFINITION: While sometimes it may be appropriate to cite an authority to support a point, often it is not.

An Appeal to Authority is a fallacy with the following form:

1. **Person A is (claimed to be) an authority on subject S.**
2. **Person A makes claim C about subject S.**
3. **Therefore, C is true.**

This fallacy is committed when the person in question is not a legitimate authority on the subject. More formally, if person A is not qualified to make reliable claims in subject S, then the argument will be fallacious.

- a. **The person is not qualified to have an expert opinion on the subject.**
- b. **Experts in the field disagree on this issue.**
- c. **The authority was making a joke, drunk, or otherwise not being serious.**
- d. **The authority is biased**
- e. **The authority's expertise is not a legitimate area or discipline**
- f. **Appeal to an Unnamed Authority / Anonymous Authorities**
- g. **Appeal to an Unnamed Authority / Anonymous Authorities**

Missing the Point

These fallacies have in common a general failure to prove that the conclusion is true. The following fallacies are cases of missing the point.

1. Begging the Question (*petitio principii*) / Circular Reasoning

DEFINITION: The truth of the conclusion is assumed by the premises. Often, the conclusion is simply restated in the premises in a slightly different form. In more difficult cases, the premise is a consequence of the conclusion. Begging the Question is a fallacy in which the premises

include the claim that the conclusion is true or (directly or indirectly) assume that the conclusion is true. This sort of "reasoning" typically has the following form.

1. Premises in which the truth of the conclusion is claimed or the truth of the conclusion is assumed (either directly or indirectly).

2. Claim C (the conclusion) is true.

This sort of "reasoning" is fallacious because simply assuming that the conclusion is true (directly or indirectly) in the premises does not constitute evidence for that conclusion. Obviously, simply assuming a claim is true does not serve as evidence for that claim. This is especially clear in particularly blatant cases: "X is true. The evidence for this claim is that X is true."

Some cases of question begging are fairly blatant, while others can be extremely subtle.

EXAMPLE: "Since Picard is a better captain than Kirk, Kirk is not the superior captain."

PROOF: Show that in order to believe that the premises are true we must already agree that the conclusion is true.

2. Straw Man

DEFINITION: The Straw Man fallacy is committed when a person simply ignores a person's actual position and substitutes a distorted, exaggerated or misrepresented version of that position. This sort of "reasoning" has the following pattern:

1. Person A has position X.

2. Person B presents position Y (which is a distorted version of X).

3. Person B attacks position Y.

4. Therefore X is false/incorrect/flawed.

This sort of "reasoning" is fallacious because attacking a distorted version of a position simply does not constitute an attack on the position itself. One might as well expect an attack on a poor drawing of a person to hurt the person.

EXAMPLE: "People who dislike Voyager just hate it because Kirk isn't on the ship." (There are stronger reasons not to like Voyager.)

PROOF: Show that the opposition's argument has been misrepresented by showing that the opposition has a stronger argument. Describe the stronger argument.

Other Fallacies

2. Argumentum Ad Novitatem / Appeal to the New / Appeal to Novelty / Newer Is Better

DEFINITION: Appeal to Novelty is a fallacy that occurs when it is assumed that something is better or correct simply because it is new.

This sort of "reasoning" has the following form:

1. *X is new.*

2. *Therefore X is correct or better.*

This sort of "reasoning" is fallacious because the novelty or newness of something does not automatically make it correct or better than something older. This is made quite obvious by the following example: Joe has proposed that $1+1$ should now be equal to 3. When asked why people should accept this, he says that he just came up with the idea. Since it is newer than the idea that $1+1=2$, it must be better.

This sort of "reasoning" is appealing for many reasons. First, "western culture" includes a very powerful commitment to the notion that new things must be better than old things. Second, the notion of progress (which seems to have come, in part, from the notion of evolution) implies that newer things will be superior to older things. Third, media advertising often sends the message that newer must be better. Because of these three factors (and others) people often accept that

a new thing (idea, product, concept, etc.) must be better because it is new. Hence, Novelty is a somewhat common fallacy, especially in advertising.

It should not be assumed that old things must be better than new things (see the fallacy Appeal to Tradition) anymore than it should be assumed that new things are better than old things. The age of thing does not, in general, have any bearing on its quality or correctness (in this context). Obviously, age does have a bearing in some contexts. For example, if a person concluded that his day old milk was better than his two-month old milk, he would not be committing an Appeal to Novelty. This is because, in such cases, the newness of the thing is relevant to its quality. Thus, the fallacy is committed only when the newness is not, in and of itself, relevant to the claim.

EXAMPLE: "The Next Generation is a newer show; therefore it is a better show."

PROOF: Point out that newer does not always mean better.

2. Red Herring / Smoke Screen / Wild Goose Chase

DEFINITION: This fallacy is committed when someone introduces irrelevant material to the issue being discussed, so that everyone's attention is diverted away from the points made, towards a different conclusion. The basic idea is to "win" an argument by leading attention away from the argument and to another topic.

This sort of "reasoning" has the following form:

1. Topic A is under discussion.
2. Topic B is introduced under the guise of being relevant to topic A (when topic B is actually not relevant to topic A).
3. Topic A is abandoned.

This sort of "reasoning" is fallacious because merely changing the topic of discussion hardly counts as an argument against a claim.

EXAMPLE: "You claim that The Motion Picture made more money than any of the Next Generation movies. But didn't more critics like First Contact?" (This is an attempt to divert away from the original point: That the Motion Picture made more money. The critics are irrelevant to the amount of money that was made.)

PROOF: Point out the Red Herring and ask them to refocus back to the subject at hand (and clarify the original point, in case anyone had gotten lost).

3. Appeal to Ridicule / Appeal to Mockery / The Horse Laugh / Humor

DEFINITION: The Appeal to Ridicule is a fallacy in which ridicule or mockery is substituted for evidence in an "argument." And/or using inappropriate humor or ridicule to avoid the issue, to cast unwarranted aspersions, or to deflect attention away from the discussion.

This line of "reasoning" has the following form:

1. X, which is some form of ridicule, is presented (typically directed at the claim).
2. Therefore claim C is false.

This sort of "reasoning" is fallacious because mocking a claim does not show that it is false. This is especially clear in the following example: "1+1=2! That's the most ridiculous thing I have ever heard!"

It should be noted that showing that a claim is ridiculous through the use of legitimate methods (such as a non fallacious argument) can make it reasonable to reject the claim. One form of this line of reasoning is known as a "reductio ad absurdum" ("reducing to absurdity"). In this sort of argument, the idea is to show that a contradiction (a statement that must be false) or an absurd result follows from a claim. For example: "Bill claims that a member of a minority group cannot be a racist. However, this is absurd. Think about this: white males are a minority in the world.

Given Bill's claim, it would follow that no white males could be racists. Hence, the Klan, Nazis, and white supremacists are not racist organizations."

Since the claim that the Klan, Nazis, and white supremacists are not racist organizations is clearly absurd, it can be concluded that the claim that a member of a minority cannot be a racist is false.

EXAMPLE: "You say that Kirk was not a violent man? Don't make me laugh! You made me spill coffee from laughing so hard! How silly such a statement is! LOL!!!"

PROOF: Point out the ridicule and that it will not deflect attention away from the discussion, nor will casting unwarranted aspersions prove something as true.

4. Fallacy of Opposition

DEFINITION: Stating that a person must be wrong for no reason other than their conclusions differ from yours.

EXAMPLE: "You don't like Picard, like I do? Well, you don't have an open mind like me, then."

PROOF: Point out that just because a person has come to a different conclusion than theirs, does not mean the person is wrong.

5. Ad lapidem

DEFINITION: Dismissing a statement as absurd or false without demonstrating it to be such.

EXAMPLE: "You say that Insurrection only made \$70 million at the domestic box office? That's not true! I don't care what the box office numbers say! It's absurd!" (They do not state why it is not true.)

PROOF: Ask them to demonstrate why they feel the statement is false or absurd.

6. Appeal to Consequences of a Belief / Wishful Thinking

DEFINITION: The Appeal to the Consequences of a Belief is a fallacy that comes in the following patterns:

1. X is true because if people did not accept X as being true then there would be negative consequences.

2. X is false because if people did not accept X as being false, then there would be negative consequences.

3. X is true because accepting that X is true has positive consequences.

4. X is false because accepting that X is false has positive consequences.

5. I wish that X were true, therefore X is true. This is known as Wishful Thinking.

6. I wish that X were false, therefore X is false. This is known as Wishful Thinking.

This line of "reasoning" is fallacious because the consequences of a belief have no bearing on whether the belief is true or false. For example, if someone were to say "If sixteen-headed purple unicorns don't exist, then I would be miserable, so they must exist" it would be clear that this would not be a good line of reasoning. It is important to note that the consequences in question are the consequences that stem from the belief. It is important to distinguish between a rational reason to believe evidence that objectively and logically supports the claim, and a reason to accept the belief because of some external factor (such as fear, a threat, or a benefit or harm that may stem from the belief) that is relevant to what a person values but is not relevant to the truth or falsity of the claim.

The nature of the fallacy is especially clear in the case of Wishful thinking. Obviously, merely wishing that something is true does not make it true. This fallacy differs from the Appeal to Belief fallacy in that the Appeal to Belief involves taking a claim that most people believe that X is true to be evidence for X being true.