Sketic’s Guide: Notes from 4th session

Arguments and Logical Fallacies

Logical Fallacy: an invalid connection between a premise and a conclusion where the conclusion does not necessarily flow from the premise(s) but is argued as if it does.

*I am convinced that the act of thinking logically cannot possibly be natural to the human mind. If it were, then mathematics would be everybody’s easiest course at school and our species would not have taken several millennia to figure out the scientific method.*

Neil deGrasse Tyson

What is an argument?
Any series of sentences, one of which is claimed to be implied by the others.

• The premises of an argument are those sentences which in the argument itself are assumed to be true.
• The sentence claimed to be true if the premises are taken to be true will be called the conclusion of the argument.

What is the purpose of arguing?

• The purpose of arguing is often misunderstood.
• A formal argument involves attempting to convince another of a specific conclusion or resolving different conclusions on a factual matter.
• An adversarial approach, where a person stakes out a position and defends it jealously, isn’t constructive.

• *The parties of an argument should be trying to find common ground and then proceeding carefully from that common ground to resolve any differences.*

Warning! This logical process to arguing only works if the arguments are about factual claims, not subjective feelings or value judgments.

Argument Process:
• First, turn your sights inward.
  • Knowledge of argument and logic must first be used to examine one’s own position.
• Make sure your premises are true, that there are no hidden premises, and your logic is sound.

• In striving to deconstruct the arguments of others:
  • Try to be as fair as possible (charity).
  • Give the other person the benefit of the doubt.
  • Take the best interpretation of their position and deconstruct that.

Second, examine your premises.
Examining all premises on both sides of an argument is a good place to start.

• There are four types of potential problems with premises:
  • A premise can simply be wrong.
  • One or more of the premises are unwarranted assumptions. (Insufficiently established)
  • The premise is hidden. (An implied premise that has not been addressed.)
  • The premise contains a subjective judgment. (Based on feeling rather than fact.)

Validity Chart

<table>
<thead>
<tr>
<th>Sentences comprising the argument</th>
<th>Validity or invalidity of the argument</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premises</td>
<td>Conclusion</td>
</tr>
<tr>
<td>All true</td>
<td>True</td>
</tr>
<tr>
<td>All true</td>
<td>False</td>
</tr>
<tr>
<td>Some (or all) false</td>
<td>True</td>
</tr>
<tr>
<td>Some (or all) false</td>
<td>False</td>
</tr>
</tbody>
</table>

Logical Fallacies:

Formal logical fallacies are always invalid.
• If we take the premises that A=B and B=C, and we conclude that A does not equal C, we have committed a formal logical fallacy.

Informal logical fallacies are often more complicated, more enigmatic.

Consider the following informal logical fallacies:
Non Sequitur (“It does not follow.”)
An argument in which the conclusion does not follow from the premises.

Some red-headed gentlemen are cheerful.
Ralph is a red-headed gentleman.
Therefore Ralph is cheerful.
There is no logical connection between the premises and the conclusion.

Argument from Authority: occurs when we assume the truth of a conclusion based solely on perceived expertise.

- The converse of this argument is that the claims of someone who does not possess authority must be considered false.
- It is legitimate to consider training and experience when examining the assessment of a particular claim.
- However, speaking from a position of authority does not necessarily make a claim true.

- Faulty Causal Relationships: may occur when the cause-and-effect relationship that is inferred does not actually exist or when more complex relationships are involved.

Examples:

A particular effect may be caused by one of several different causes or by a combination of different causes. “The straw that breaks the camel’s back” is a common example.

Post hoc ergo propter hoc (after this, therefore because of this): presuming that if one event happens after another, the second one is necessarily caused by the first. “Having a black cat cross in front of you, breaking a mirror, walking under a ladder.”

Confusing Correlation with Causation: assuming a cause and effect relationship for two variables simply because they occur together.

ex. Organic food sales and allergies, swimming pool accidents and Nicholas Cage movies, my golf club and a bad shot, etc.
• There are four possible interpretations of an apparent correlation:
  • There is no correlation, at all.
  • A causes B.
  • B causes A
  • A and B are both caused by another variable, C.

Ad Hoc (for this) Reasoning: the arbitrary introduction of new elements into an argument in order to jerry-rig that argument so it appears valid.

• Carl Sagan gave a famous example of this fallacy by claiming to have a dragon in his garage.
• He said the reason that tests attempting to confirm the existence of the dragon failed was because:
  • It was invisible.
  • It was incorporeal and floating.
  • It was heatless.

Nessie?

Ad Hominem (arguing against the man): Instead of trying to demonstrate a weakness in the opponent’s reasoning, I assail his character.

• Another form of ad hominem is called “poisoning the well”: This is an attempt to discredit another’s argument by implying that he/she possesses an unsavory trait.
• “We should not support the passing of this bill; and you will know how little you can believe my opponent’s argument in favor of it when I tell you that his uncle was recently under threat of prosecution for evasion of taxes.”

Ad Ignorantiam: states that a specific belief is true because we don’t know that it isn’t true.

• Often the argument from ignorance is defended with the adage, “Absence of evidence is not evidence of absence.”
• Absence of evidence is, in fact, evidence of absence. It’s just not absolute proof of absence.
• Can one lay claim to the existence of the Loch Ness monster by arguing that no one has ever seen her?

Inadequate Sampling: may occur when we generalize on the basis of too few particulars or when we ignore other particulars which actually show our generalization to be unsound.

Example: One may see two or three noisily-intoxicated students and conclude: “All those college kids are drunks.”
• Inadequate sampling (limited choice) may account for some prejudices that people have a tendency to adopt.
• Under any circumstances it is best for us to observe and consider as many particulars as possible in order to reach reliable conclusions.

Faulty Analogy: may occur when from particular similarities between two things we infer a further or more general similarity which does not really exist.

• A false analogy can be a very subtle fallacy:
  • Are the things being compared truly analogous?
  • Are they analogous in the specific ways that are being claimed?
• A valid analogy means that two things are similar in an important way relevant to the argument at hand.

Example: Although a new film/book may be similar in a number of ways to one we have previously seen/read and enjoyed, it may still disappoint us.
• If we either fail to compare enough similarities or fail to compare important similarities, faulty analogy may occur; however, reasoning by analogy only indicates a probable conclusion and never constitutes proof.

Tautology (begging the question): utilizes circular reasoning which means that the conclusion is its own premise.

• Giving a false appearance of proof.
• The person actually assumes in his argument the truth of what he is trying to prove.
• The argument made is valid, but trivial in that it offers no independent proof of the conclusion.

Examples:

“These guilty men committed the crime for which they are on trial.”

“Men eventually die because men are not immortal.”

Texas Sharpshooter Fallacy: choosing the criteria for success or failure after you know the outcome.

• A target shooter claims that he can always hit the bull’s eye.

• He aims at the side of the barn, shoots a hole in the wood.
• Then he goes up and draws a target around the hole he just made.
SuperCyberDate.com determined that Sally and Billy are a great match because they both like pizza, movies, junk food, Janet Jackson, and vote republican.