

A very little guide to logical argument and fallacies

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In philosophical or academic English, argument means reasons supporting a conclusion. It should not be confused with the other meaning of argument, which means a quarrel where assertions take the place of reasons. An assertion is a conclusion where reasoning is not supplied.

In logic, arguments are set out in a way we may not be accustomed to on everyday life.

However, these structures help us analyse the argument proposed.

An argument is made up of premises (at least two) and a conclusion that can be drawn from these premises.

MODUS PONENS (affirming the antecedent)

This is a valid argument and takes the form:

All As are Bs		If A then B
A		A
Therefore B	OR	Therefore B

Example:

Premise 1: All Scots are mad.

Premise 2: John is a Scot.

Conclusion: Therefore, John is mad.

MODUS TOLLENS (denying the consequent)

This is a valid argument and takes the form:

If A then B
Not B
Therefore not A

Example:

If it is raining, you'll get wet

You're not wet

Therefore, it is not raining.

HYPOTHETICAL SYLLOGISM

This is a valid argument and takes the form:

If A then B
If B then C
Therefore, if A then C.

A topical, if controversial example:

If France develops successful nuclear fusion, then electricity will be cheap and plentiful.

If there is cheap and plentiful electricity, the economy will boom.

Therefore, If France develops success nuclear fusion, the economy will boom.

(No play on words intended)

DYSJUNCTIVE SYLLOGISM

This is a valid argument and takes the form:

A or B
Not A
Therefore, B

Example,
Either Le Pen or Chirac won the last Presidential election
Le Pen did not win
Therefore, Chirac won.

However, arguments are rarely presented in this form. One, or more, of the premises may be left out or assumed. When this happens we call the structure an **ENTHYMEME**.

Example:
In an advert the following was stated “More Americans drink Budweiser than any other beer” without any other explanation.
Since this is an advertisement it is unlikely that the conclusion to be drawn is that Americans have bad taste (that would be to read against the grain)!
The implied conclusion is “You should drink Bud”.

There are two assumptions or implied premises which have not been stated. The implied premises are the following:
The most popular is the best.
You should drink the best beer.
Therefore, you should drink Bud.

Usually, an enthymeme keeps the minor premise and the conclusion in order to avoid ambiguity (i.e. that Americans have bad taste)

REDUCTIO AD ABSURDUM

The classical logical definition is rarely used in everyday life, so we will leave it to one side. The common form of the move, is the refutation of a position by showing that it would lead to an absurd conclusion.

Example:
Nobody that has broken a law should be allowed to hold public office.

This may seem reasonable at first. However, most people have broken a law at sometime in their lives. It may have been in the distant past or a speeding or a parking offence. If we applied the rule, hardly anyone would be allowed to hold public office and people that were otherwise both suitable and competent would be excluded.

FALLACIES

QUESTIONABLE PREMISE = QUESTIONABLE CONCLUSION

The above argument, about Bud, also falls into the category of fallacy known as QUESTIONABLE PREMISE = QUESTIONABLE CONCLUSION. That is if one of the premises is doubtful then so is the conclusion. The questionable premise in this case is that the most popular beer is the best.

DENYING THE ANTECEDENT

This is a formally invalid argument.

If A then B
Not A
Therefore not B

Example:

If I'm fat, I'll have high cholesterol
I'm not fat
Therefore I don't have a cholesterol problem.

The conclusion is false as I could have high cholesterol for another reason.

AFFIRMING THE CONSEQUENT

If A then B
B
Therefore A

Example:

If Tony Blair is prime minister, then a socialist is prime minister.
A socialist is prime minister
Therefore, Blair is still prime minister.

The conclusion is, perhaps, true but the reasoning is flawed as another socialist could be prime minister. It is a *non sequitur*, it does not necessarily follow. (In this case, we also have a questionable premise since Mr Blair no longer calls himself a socialist).

TAUTOLOGY

A tautology is a statement that is logically or necessarily true and, therefore, has no content. For example: snow is white except when it isn't.

APPEAL TO AUTHORITY

This is when we say something is true because of the advice of an expert. We all rely on experts (doctors, mechanics etc) so the test is as follows:

- 1) Is the expert qualified in the field.
- 2) That the source is trustworthy, has no axe to grind, no vested interest and unbiased.
- 3) Do we need an expert? Can we work it out for ourselves? Could we multiply the sources by doing research.

Example:

1) David Beckham is a good footballer and, therefore, we can probably rely on him for comments on that subject.

In a comparative study, are we sure that he is an expert on the efficiency of shaving products?

2) Should we trust the words of George W. Bush about the activities of the oil industry?

3) Study, read, think!

INCONSISTENCY

A and not-A!

Usually more complicated than that:

For example in the Tom Meyer cartoon from the San Francisco Chronicle 28/1/04:

An image of Uncle Sam states:

“You can’t have direct elections...

Or majority rule...

And we won’t let the wrong people in charge!

But besides that, ENJOY DEMOCRACY!

Two Iraqis in the background

First: “One man, one vote”

Second: “And that must be the man!”

The message of the cartoon is that Iraq can have democracy if Iraqis do what America tells them (Iraqis must vote for Uncle Sam).

STRAW MAN

You set up a straw man in order to knock him down.

The fallacy is of misrepresenting an opponent or of an invidious comparison.

1. Present the opponent's argument in weakened form, refute it, and pretend that the original has been refuted.
2. Present a misrepresentation of the opponent's position, refute it, and pretend that the opponent's actual position has been refuted.
3. Present someone who defends a position poorly as *the* defender, refute that person's arguments, and pretend that *every* upholder of that position, and thus the position itself, has been defeated.
4. Invent a fictitious persona with actions or beliefs that are criticized, and pretend that the person represents a group that the speaker is critical of.

This is the fallacy used in negative advertising.

Example:

The CIC bank have a number of adverts showing a bank across the street. The staff of the bank are incompetent, badly dressed etc. The CIC agent gives them a bouquet of pears!

The implication is that the CIC is the best, but this is without any justification.

(FALSE) DILEMMA

This is the fallacy that one has only two choices and both will lead to a bad conclusion.

Either P or Q

If P then R

If Q then S

Therefore either R or S

Example:

Either I sleep with my rhetoric teacher or I don't.

If I sleep with him, I'll be found out and expelled from the university.

If I don't I'll fail my rhetoric exam and be expelled from the university.

Therefore ...

There are two ways of challenging a dilemma. The first is called "grasping the horns": you attack either P or Q. Example, I should report the rhetoric teacher for sexual harassment. The second is called "going between the horns". This is where you propose a third alternative. In this case, revise your rhetoric and pass the exam!

BEGGING THE QUESTION (*petitio principii*)

A therefore A.

This is similar to tautology. It is where the premise includes the conclusion.

Example:

An owner of a popular club comments on the waiting list for members to be admitted: "The reason there is such a big demand is because everyone wants to get in".

In other words, there is a big demand because there is a big demand.

This is sometimes known as the circular argument. The following example comes from personal experience:

Mormon: The Book of Mormon is the truth.

John: How do you know?

Mormon: Because it says so in Chapter ...

SLIPPERY SLOPE

Also called the domino effect or the snowball effect.

This argument states that should one event occur other harmful events will follow. No proof is given for the sequence of cause and effect.

For example:

"If we legalize marijuana, then more people would start to take crack and heroin, and we'd have to legalize those too. Before long we'd have a nation full of drug-addicts on welfare. Therefore we cannot legalize marijuana." (Taken from *An Atheist's Guide*)

Likewise, the argument used against National Health care in the US. It will lead to further nationalisations (railways, industries, etc) and the US will be converted into a socialist state!

Or, that stem cell research will lead to genocide...

Slippery slope arguments do not allow for the possibility of **drawing a line**. That is, to argue that there is a cut-off point somewhere between the two extremes.

AD HOMINEM

"To the person"

This is where one insults or makes negative insinuations about a person rather than tackling the argument in question. For example, in a article published in *The Spectator* written by Wolfgang Munchau entitled "Anti-Americanism, anti-Semitism, anti-capitalism". Already, the title seems to be making **invidious comparisons**. One way of reading the title is:

If you are anti-capitalist

Then you are anti-American

And therefore you are anti-Semitic

Any other combination is possible. The quote is even more directly *ad hominem*:

“Mr Müntefering is no Nazi, simply a ruthless political operator with no scruples, a bad education and no sense of German history.”

Another example:

“Really, if you think that rhetoric is just a question of Who, What and Where, frankly you have a problem!”

The writer gives no proof for his accusations and only gives a negative view of his opponent!

This is called **abusive ad hominem**.

However, there is also **circumstantial ad hominem**. This is also known as “guilt by association” or the “bad company fallacy”. That is, if one thing has at anytime been associated with another, then that association never disappears. Example:

“How can you trust him, you know what his Dad did!”

TWO WRONGS MAKE A RIGHT.

The Latin name is *tu quoque* meaning “you’re the same” or “you too”. That is, you defend one position by saying another position is also wrong.

Example:

“How can you argue for fidelity in marriage, when you’ve had an affair?”

“You’ve had affairs too!”

The second speaker gives no reasons for his/her position, (s)he simply states that “the pot is calling the kettle black”. The first speaker is also at fault as we do not know if the alleged affairs were inside or outside marriage!

AD POPULUM

Also known as **common practice**. This is where we reason that because lots of people (especially if they are the type of people we admire) do or believe something it must be justified.

Example: “But Mum, you’ve got to buy me Nike trainers. Everyone in my class has got them!”

AD ANTIQUITAM

In **traditional wisdom** we claim justification because “that’s the way it has always been done”. Both of these can be used to pretend to justify both positive and negative views or actions.

AD NOVITATEM

This is the opposite of **ad Antiquitam**. It asserts that the newest idea, invention or model is the best just because it is new. It underlies the idea that newness is equivalent to progress.

POISONING THE WELL

This is where the speaker insults a whole section of the population in order to undermine anyone who holds a certain position. For example:

Only murdering liberals would support abortion!

A variation of this is known as “tarring (or painting) everyone with the same brush”. The following (with spelling corrections) is taken from an on-line American student magazine:

Finkelstein continually grouped North American Jewry without any regard to the various opinions contained there in. That encourages the stereotype of the Jewish conspiracy, which plays upon age-old anti-Semitic stereotypes. Believe me when I say, not all Jews support the actions of this

Israeli government. Not all Israelis support the actions of this government. To imply that all of Israel's actions have been planned and executed by the same conspiracy of people is tantamount to the furthering the anti-Semitic concept of the ZOG.

Finkelstein is attacked for saying all Jews are the same –he tars them with the same brush. However, the writer is guilty of *ad hominem* by associating Finkelstein with the Klu Klux Klan by connecting him with the acronym ZOG “= Zionist Occupied Government” the anti-Semitic term by which the Klan describes the Federal government of the USA.

APPEAL TO IGNORANCE (Argumentum ad ignorantiam)

This is the argument where a lack of information on a subject is taken to be sufficient to affirm it.

Example:

“Can you prove the Bible is false?”

“No.”

“Well then it must be true!”

During the Iraq war the Bush government used a variation:

“Can Saddam Hussein prove that he hasn’t weapons of mass destruction.”

“Not to our satisfaction.”

“Therefore, he must have WMDs.”

APPEAL TO FEAR/FORCE (Argumentum ad baculum)

This fallacies may be more or less subtle. A director of a company may insinuate that anyone who votes against him is in danger of losing their job. It could be the famous scene from *The Godfather*. The Godfather places a gun to someone’s head and states, “I’m making you an offer you can’t refuse”.

However, it is also used in advertising. If you do not use our product you will get spots, have bad breath or never have a love life!

APPEAL TO PITY (ad misericordium)

The second part of the example is an appeal to pity:

Example: “But Mum, if you don’t buy me Nike trainers, I’ll look like a geek!”

POST HOC ERGO PROPTER HOC

“Whatever happened after this, must have happened because of this”.

Example:

I bought a new shirt and shoes for my interview.

I got the job.

I got the job because of my new clothes

Clothes may be important but they were certainly not the only reason he got the job.

Another example:

Bob and Jill went on holiday to Venice.

They split up soon after that.

They split up because they went to Venice.

There is probably more to it than that.

The most common version of this is taking sheer coincidence as cause and effect.

Example:

My horoscope for the month said I would meet a new girlfriend, and that my lucky number would be 3 and my colour blue.

I met Mary on the fifteenth and she was wearing a blue skirt and she lives at 3 London Road. Isn't that marvellous?

Implied conclusion: the interpretation of the conjunction of the stars facilitated (caused) my new friendship.

QUIBBLING

Also referred to as pedantry, nit-picking or hair-splitting.

Where we address minor details rather the fundamental points of an argument.

In the case of pedantry, a park keeper might change a sign that reads "Do not Walk on the Grass" with one that states "Keep off the Grass", as the first does not specify other activities such as dancing, hopping, crawling etc. A member of the public who crawled because it said walk would be guilty of the same fallacy.

More seriously, a Pentagon statesman for the troops in Iraq stated on BBC Radio 4, 15/11/05 that white phosphorous is not a chemical weapon (and thus illegal under International Law) because

- 1) It kills by incineration.
- 2) Like Napalm, it is "selective ordinance" despite it being chemical and dropped over large areas of country.
- 3) It is not directly used as a weapon as killing people is only a secondary effect of dropping it on the target!

This quibble, it is not a chemical weapon because it is not usually used as a weapon although it was so used in this case, is necessary for the Pentagon as otherwise the US Army would be guilty of a war crime!

EQUIVOCATION

One of the many forms of ambiguity. Equivocation uses a shift in meaning in order to get a message over or to create a specific effect. Firstly, a simple example playing on the word "mortal":

All men are mortal
Johnny Halliday is a man
But Johnny is immortal
So at least one man is immortal!

One use of "mortal" is physical, the other "immortal" reputation. As in the Immortal Bard! More seriously and more often used is the example of "equality". The equivocation is the blurred distinction between a general "equality before the law" and the definition as "complete and total uniformity" in all things:

You want equality (before the law)

Equality (in the sense of uniformity of conditions for all) is an unachievable and undesirable goal.

Therefore, what you desire is unachievable and undesirable.

The end – happy reading.

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