

# Evaluating Arguments

To find out whether an argument is good, we must perform two tasks.

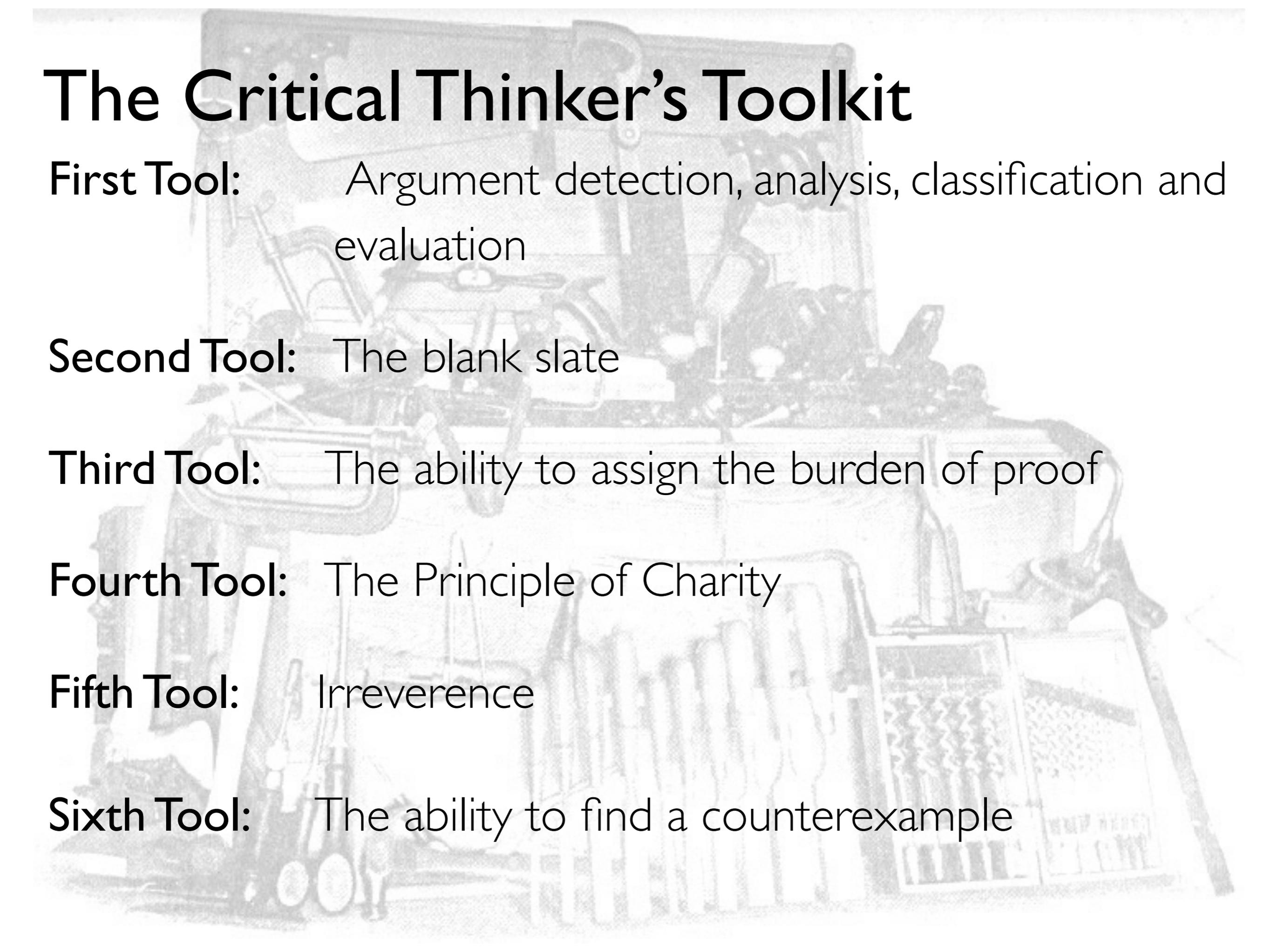
**1. The Logical Task:** We must suppose that the premises are all true and then determine how probable the conclusion is given that supposition.

**2. The Material Task:** We must learn whether the premises are true or, at any rate, we must decide how plausible they are.

If an argument fails the logical task OR the material task OR both, it is not a good argument and we should reject it.

*The conclusion, however, could still be true.*

# The Critical Thinker's Toolkit



**First Tool:** Argument detection, analysis, classification and evaluation

**Second Tool:** The blank slate

**Third Tool:** The ability to assign the burden of proof

**Fourth Tool:** The Principle of Charity

**Fifth Tool:** Irreverence

**Sixth Tool:** The ability to find a counterexample

When we are trying to assess whether an argument is good, we should assess it with respect to the standards the arguer intended the argument to be judged by.

If someone intends that their premises should entail some conclusion, then if the premises do not entail the conclusion, the arguer has put forward a bad argument.

If someone intends that their premises should strongly suggest some conclusion, then if the premises do not strongly suggest the conclusion, the arguer has put forward a bad argument.

# Second Tool: The Blank Slate

To make like a blank slate is to adopt an open mind when applying tool one, that is, when detecting, analysing, classifying and evaluating arguments.

# 3rd Tool: The ability to assign the Burden of Proof

## *Definition*

Somebody who makes a statement shoulders the burden of proof if she needs to defend that statement; in other words, she shoulders the burden of proof if an argument in support of the statement is required before her audience can reasonably be expected to agree with the statement.

We can make some useful generalisations, though, about which sorts of people in which circumstances hold the burden of proof:

People who argue against the status quo

People who put forward a controversial claim

People who put forward a claim which could easily be checked by gathering evidence without much effort

People who start an argument

The Prosecution in a trial

Site managers in matters of safety

Whistle blowers

Sub-ordinates who disobey orders that are handed down by an appropriate procedure

# Fourth Tool: The Principle of Charity

In analysing an argument, give the arguer the benefit of the doubt wherever possible. Adopt the reconstruction, paraphrase or interpretation of the argument that is most likely to make it a good one, one with plausible premises that provide considerable support for its conclusion.

# Two Reasons for Invoking the Principle of Charity

1. It is the most rational thing to do:

(a) If you are in favour of the arguer's conclusion, you want her argument to be strong.

(b) If you are against it, you are better off attacking a stronger rather than weaker version of it.

(c) If you don't have a viewpoint, you want the debate to be a quality debate.

2. It is the ethical approach. We should do our best to elicit reasonable opinions from people instead of seizing on the unreasonable things they say and shutting down the debate.

# Fifth Tool: Irreverence

## *Definition*

To evaluate an argument irreverently is to be unimpressed by irrelevant details of the way the argument is phrased, the person offering it, the effect its conclusion would have if it were true and so on.

# Sixth Tool: The Ability to Search for a Counter-example

## *Definition*

A counter-example to an argument is a situation which shows that the argument can have true premises and a false conclusion.

# Rough Definition of 'Fallacy'

A Fallacy is a bad argument which may nonetheless be psychologically persuasive.

## Two Projects in the Study of Fallacies

Project 1: Diagnosing the flaws in fallacies of various kinds (why they are bad arguments).

Project 2: Considering why fallacies of various kinds are psychologically persuasive (why they can seem like good arguments).

# A Rough-and-ready Approach to Project I

If an argument is fallacious, it suffers from at least one of two ailments.

## **First Ailment (Insufficient Evidence = Logical Failure)**

The premises taken together do not provide sufficient grounds for judging that the conclusion is true.

## **Second Ailment (Failure of Support for Premises = Material Failure)**

At least one premise is a proposition which an ordinary reasoner should know not to accept without further evidence.

# Some Things to Watch Out For

i. People often wrongly regard certain information as relevant to assessing an argument. This information includes:

- Information about the person offering the argument,
- Information that tends to promote a positive attitude towards the idea that the conclusion is true and
- Information about what good or bad things would happen if the conclusion turned out to be true.

ii. People are often confused by arguments with complex structures or lots of technical jargon. (Writing the arguments out in standard form, diagramming them or paraphrasing them can diminish such risks.)

iii. People are often insufficiently sensitive to the fact that some words used in arguments are ambiguous and some are vague.

Puzzling statement: *If you can eat any fish, you can eat any fish*

**Paraphrase:** If there's at least one kind of fish that you are able to eat, then you will find that you are able to eat all kinds of fish.

iv. Arguments that deal with certain types of information (e.g., analogies, causes and their effects, statistics) are prone to mislead.

v. Rough-and-ready reasoning that serves us well in some situations lets us down in other situations.

vi. Sometimes we make bad decisions under pressure from time or from a peer group.

# Ad hominem Arguments

## *The Ad hominem Fallacy*

An ad hominem argument is fallacious when what is being attacked is somebody's argument. One tries to discredit the argument by attacking the source of the argument instead of the argument itself.

# First flavour: *Argumentum ad hominem abusive*

The fallacy of calling into question some features of the arguer's appearance, demeanour, deportment or general character, where these features are irrelevant to the quality of the arguer's reasoning.

## Example

Colin Craig thinks parents should be able to smack their children as part of a good parental correction measure, but Colin Craig is also the kind of person who thinks the Moon Landings might have been faked.

# Second flavour: Circumstantial

Calling into question some features of the arguer's circumstances or views rather than discussing the quality of the arguer's reasoning.

## Example

Peter Dunne argues against the plain packaging of cigarettes, but Dunne has taken gifts and hospitality from Big Tobacco. True, a lot of other politicians have as well, and Dunne does have amazing hair, but he's hardly an objective observer, is he? We can discount Peter Dunne's contributions to this debate.

# Third Flavour: Tu quoque (Latin for 'you too')

Pointing out an inconsistency between the arguer's argument and the arguer's other attitudes or actions and concluding that, because of said inconsistency, the argument must be bad.

## Example

You argue vehemently and persuasively that I shouldn't leak sensitive private data to the press, but I won't have a bar of it! You leak sensitive private data to your pet journalists all the time!

# Not all ad hominem arguments are fallacious

i. An ad hominem argument which is used to discredit somebody's testimony about a matter of fact rather than somebody's argument might be a good argument.

ii. An ad hominem argument may simply be directed against a person, without trying to discredit any argument or testimony offered by that person. Such an argument may be good or bad. It depends on whether the personal attack is relevant to the conclusion of the argument.

# Inverse ad hominem Argument

## *The Inverse ad hominem Fallacy*

Instead of attacking the source of an argument and then claiming that the argument is bad (as in the ad hominem fallacy), one praises the source of an argument and then claims (fallaciously) that the argument is therefore good.

# Appealing to Authority

An Appeal to Authority is an argument in which the reason given for inferring the conclusion is that some expert endorses it.

An appeal to authority is legitimate (non-fallacious) if the following four conditions are all met:

- (a) The person appealed to is a genuine authority in a field relevant to the truth of the conclusion;
- (b) There is substantial agreement among experts in that field that the view endorsed is correct;
- (c) The expert is testifying honestly
- (d) The expert opinion is not being used as a reason for rejecting somebody's argument

If any one of these conditions is not met, the appeal to authority is fallacious.

# Red Herring Fallacies

A red herring fallacy is an example of an argument which contains a premise which is irrelevant with respect to the truth of the conclusion of the argument but has been put forward as a reason for believing the conclusion to follow from the premises.

# The Fallacy of Begging the Question

A question-begging argument includes, implicitly or explicitly, its conclusion as one of its premises.

Such arguments pass the logical task because the conclusion is just a restatement of one of the premises.

However, a question-begging argument should not persuade anybody since to be persuaded by the argument one must believe all its premises and this means already believing the conclusion.

All question-begging arguments are fallacious.

# The Self-sealing Fallacy

This is a species of *Begging the Question*. Here, one premise of the argument supplies a definition of crucial terms in the conclusion.

# The Fallacy of Vague Argument

Sometimes a premise or conclusion of an argument is so vague or imprecise that it would be very uninteresting if it were true. Some arguments involving vague terms are fallacious: they are if the premises only supply good evidence for the conclusion on the assumption that the vague statement is not vague.

# The Fallacy of Equivocation

The fallacy of equivocation occurs when one meaning of a word or phrase [or sentence] is used in the premises, but a different meaning is used in the conclusion.

# **Amphiboly** (or the fallacy of sentential ambiguity)

An argument in which an ambiguous sentence plays an essential role. Often, the sentence is true on one reading, but false on the reading which one needs if the argument is to be valid or strong.

# Eye-witness Testimony

Four possible sources of inaccurate eyewitness testimony are:

1. The witness may not have been in a position to observe accurately;
2. The witness's preconceptions may have distorted the witness's observations;
3. Subsequent events and the passage of time may have led to inaccurate memories;
4. The witness may be insincere.

# Urban Legends

An Urban Legend is a story that teaches a moral. Most urban legends are predominantly fiction, perhaps with some basis in fact. The term usually refers to a relatively modern-sounding story - one that could have occurred recently.

# Inference to (arguing for) an explanation

## *Definition*

An inference to an explanation (of a phenomenon or type of) is a non-deductive argument whose premises state that the phenomenon or type of phenomenon has occurred and whose conclusion is a hypothesis about how or why that (type of) phenomenon occurred.

Inferences to explanation go wrong

(1) When we fail to consider some worthwhile contenders among the candidate hypotheses, and;

(2) When we make a bad judgement about which is the most probable hypothesis.

# The 'Just So' Fallacy

A 'Just So' argument is an argument in support of a particular hypothesis where the only evidence offered for the hypothesis is that it fits the data - it is consistent with all the known facts about the phenomenon.

# Conspiracy theories

A conspiracy theory is an explanation that cites the existence of a conspiracy as a salient cause of an event.

# *Definition*

The fallacy of Suppressed Evidence is an argument in which the premises omit crucial information which must be tracked down and added before we can tell whether the premises form part of a strong argument. The omitted information may count for or against the conclusion. All arguments in which evidence is suppressed are fallacious.

# *Definition*

To draw an analogy between two things A and B is to assert that they are similar in ways relevant to the discussion that is underway.

We should distinguish between:

Illustrative analogies

and

Arguments by analogy.

# Evaluating Arguments by Analogy

Several considerations bear on the relative strength or weakness of an non-deductive argument by analogy.

1. Number of items B which are compared with A: more items in the B set strengthen an analogy; fewer weaken it.

2. Variety among the B Items; the more variety there is among the items being compared with A, the stronger the analogical argument becomes.

3. Number of respects in which B items are like the A item: the more similarities there are between the items being compared in the analogy, the stronger the argument.

4. Relevance of the similarities between B and A to the conclusion (an imprecise notion): the respects in which the compared items are similar must be relevant to the further respect in which the argument claims they are similar.

5. Number of relevant dissimilarities between B and A: the fewer relevant dissimilarities between instances and conclusion, the better an analogical argument is.

6. Modesty of conclusion: arguments by analogy are stronger when their conclusions are more modest (less bold) with respect to their premises.

# Faulty (or Questionable) Analogies

There are two reasons why an argument by analogy may be fallacious (that is, logically flawed, but also psychologically persuasive).

a) (Bad Principle) The reason for thinking that any items which are similar in the original respects must or are likely to be similar in sharing the new feature turns out to be false or at least controversial.

b) (Bad Analogy) The two situations described in the argument do not in fact have all the features attributed to them in the argument. The two cases are not sufficiently similar for the premises to be plausible. They are different in relevant and important respects.

# The Strawman Fallacy

A Strawman fallacy is an argument against an opponent's position in which that position is misrepresented and then the misrepresentation rather than the opponent's real position is attacked.

## **Base Rate Fallacy** (a version of the Fallacy of Suppressed Evidence)

An argument whose premises assert that a member of a certain sub-group within a population is more likely to have a certain feature than a member of the remainder of the population and which concludes that something/somebody with that feature is a member of that sub-group. The argument is fallacious because the premises do not say how big the sub-group is relative to the population.

# At least 3 Meanings of 'Typical' or 'Average'

1. Mean: add up all the individual instances of a measure and then divide by the total number of instances.

2. Median: middle instance of a list of the instances in numerical order.

3. Mode: most frequently occurring instance.

# Rules for Statistical Samples

The larger the sample, the more likely it is that data from the sample will reflect the corresponding facts about the population.

The more representative a sample is of different subgroups, the more likely it is to reflect the population.

The more closely the variation in the sample proportionately reflects variation in the population, the more likely it is that the sample will reflect the population.

The closer the selection of sample members is to a random selection, the more likely it is that the sampled data will reflect the corresponding facts about the population

# What do we mean by 'the cause?'

There are four different things people could mean:

1. The special condition which, given the laws of nature and standard background circumstances, brings about a type of event.

## Examples

What makes a plane fly?

Why hasn't a race of giant, super-intelligent ants taken over the world?

2. The condition whose presence enables a suitably placed, suitably resourced person to bring about an event of a particular type.

## **Examples**

What makes a plane fly?

What could I do to create a race of giant, super-intelligent ants?

3. The condition which a normal observer could remove from a situation in order to prevent an event of a certain type.

## **Examples**

How do we prevent a repeat of last winter's power crisis?

How do we prevent domestic gas explosions?

How do we prevent Matthew from taking over the world with his race of giant super-intelligent ants?

4. The condition in virtue of which we hold somebody responsible for the occurrence of an event.

## **Examples**

Who is accountable (or should pay out, or should be blamed/praised) for the explosion?

Whose fault was last winter's power crisis?

Who left the taps on in the bathroom?

Who is to blame for creating a race of giant, super-intelligent ants who wish to take over the world?

# Correlation

Two types of event (or situation, or state of affairs) are:

Perfectly (positively) correlated if and only if an event of the first type occurs when and only when an event of the second type occurs.

or:

Highly (positively) correlated if and only if, for the most part, an event of the first type occurs when and only when an event of the second type occurs.

Here are five ways to account for the fact that two types of event are perfectly correlated:

1. Events of the first type cause events of the second type.

*Pressing the light switch happens just before the light comes on.*

2. Events of the second type cause events of the first.

*When the street lights come on, the sun goes down.*

3. Sometimes events of the first type cause events of the second type and sometimes it is the other way round.

*When my partner gets angry, I get angry.*

4. Events of both types are among the causal results of some third type of event.

*People in Wellington start getting out of bed at the same time that people in Auckland start getting out of bed.*

5. Coincidence

*You get superstitious causal claims, especially when the probability of an interesting event is low or the event happens infrequently.*

# The Fallacy of Questionable Cause

An argument where a correlation is assumed to be a cause.

The premises of the argument assert that a correlation holds between two events, A and B.

The conclusion asserts that, therefore, A-type events cause B-type events.

The argument ignores the four other possible explanations of the correlation between A and B.

# Two special types of Questionable Cause Fallacy

i. Post hoc ergo propter hoc: ('after that, this, therefore, this, because of that')

*Two separate events occur one after the other and it is concluded that the first caused the second.*

## Example 1

Widespread disorder in the South Island on Saturday night had the police dealing with over 700 separate incidents. What do you expect when the Crusaders lose the Super 14 Finals!

ii. Mistaking correlation for cause: taking two types of event which are correlated and concluding that they are causally connected.

## **Example 2**

Hot Chocolate prevents crime! When sales of hot chocolate go up, street crime comes down!

# The Fallacy of Inverting Cause and Effect

This occurs when one moves from the premise that A causes B to the conclusion that an absence of A causes (leads to) an absence of B.

## Example

If you don't give your Mother a present for her birthday then she will not be very happy. Thus, by giving your Mother presents for her birthday you can guarantee that she will be very happy.

# What have we learnt?

Arguments come in a variety of strengths.

Controversial claims need arguments to support them.

Knowing when to assign the burden of proof is important.

Appeals to Authority need to be both legitimate and cannot be used against someone else's argument.

Never attack someone's character, only their argument, unless it is a case of testimony.

Testimony can be unreliable.

***Being a critical thinker is hard but not impossible.***