

Session 8 – Report – June 28, 2022.

This session discussed Logic – the process of reasoning and argument.

In Session 8 we covered a lot of ground and analysed some examples, but the subject was by no measure exhausted and it is of value in this report to look more closely at the structure of arguments which lead, or do not lead, to logically valid and sound conclusions.

Why is this important? One reason is that we live our lives according to the decisions we make, both consciously and intuitively, and we can achieve better results if we seek to understand and apply the rules of logical reasoning, the while also testing the validity of arguments put to us by others.

Are the decisions we make the result of logically correct reasoning? Whether so or not the conclusions reached may not be ‘true’? They may be based on false assumptions; they may not follow from the premises; the premises may be limited in their scope – it is for us to be wary of the many fallacies in reasoning or presentation met in everyday experience.

Arguments are used by ourselves and by others to educate, to persuade, to deceive, to obstruct, to impress, to test alternatives, to resolve problems, to get our own ways, to avoid penalties, to ... etc., etc.. Advertisers often use tricks to divert attention away from flaws in their messages.

Aristotle is the first person on record to study and document just how a valid conclusion may be deduced from one or more accepted premises. He virtually created the science of logic from scratch, authoring six books:- Categories – On Interpretation – Prior Analytics – Posterior Analytics – Topics – & Sophistical Refutations. Information on these can be obtained from the internet.

Over the centuries others have built upon Aristotle’s foundations. With ever-greater expansion and analysis of the subject special symbols were developed in the early 20th century, by the use of which even complex arguments could be broken into manageable portions for determining the validity or otherwise of the resultant conclusions.

A C Grayling, in his ‘The History of Philosophy’ includes an appendix – ‘A Sketch of Logic’ which summarises where the subject is at present. In it he identifies three distinct branches:-

Formal Deductive Logic; Inductive Logic; & Informal Logic.

Formal Deductive Logic is the reasoning process whereby a conclusion naturally and indisputably follows from one or more premises. Even if a premise is faulty in some way, the validity of the reasoning process still stands.

An example is: ‘All men are mortal’ (= the major & general premise); ‘This person is a man’ (= the minor & specific premise); therefore ‘This person is mortal’ (= the logical conclusion).

Note that Formal Deductive Logic is a specific and limited process – one restricted by the limitations in the premises. For example, the above does not enable any logical conclusion to be reached about the mortality of women, as would be the case if the major/minor premises had substituted ‘humans’ /‘human’ for ‘men’/‘man’.

Note also that it is the ‘process’ of argument that is held here to be important – the subject matter is beside the point.

If the premise(s) are in fact true (eg: ‘all mammals are warm-blooded’) then any logical conclusion(s) drawn from them will also be true. This is termed a ‘sound’ argument.

Inductive Logic is the branch which is most frequently encountered, either consciously or unconsciously, in day-to-day living. It entails making generalised assumptions (premises), often based on limited experience, then drawing a logically correct conclusion, but not necessarily a true or factual one – that is, it may not be a ‘sound’ conclusion.

As example, until black swans were discovered in Australia, the general belief was that ‘All swans are white’ and a logical conclusion from that was that swans of any other colour did not exist.

An up-dated premise could be ‘Some swans are white’. This still leaves open the question as to what other colour(s) swans may be – perhaps there are even rainbow-coloured ones somewhere yet to be discovered.

We often use such inductive generalisations:

‘I’ve always done my job this way and never had an accident – therefore it is safe’. But

How many farmers have experienced tractor accidents?

How many speeding drivers have come to grief?

How many ladder climbers have fallen?

How many children have been left in hot, locked cars?

Inductive Logic has its hazards but it has its values if used with an understanding of its limitations. It is not so restrictive as the above Formal Logic, it avoids the tedium of continually re-assessing routine activities, and, whenever a resulting logical conclusion is found to be not true, it motivates us to re-examine the premise(s) for revision if and as necessary.

Science often progresses this way. An hypothesis is formed - whatever predictions logically follow are then tested – if the predictions hold to an acceptable level it becomes a theory - the theory then remains in effect, only being discarded if new consequences force it out of favour or if another hypothesis is later accepted in its place. In this way Einstein’s relativity theories were seen to be superior for (for example) global positioning systems (GPS), compared with the time and motion theories of Newton, though the latter are still much used for astronomical predictions where their simplicity has advantage and their lesser degree of accuracy is of no practical disadvantage.

Informal logic covers the many types of reasoning involved in politics, law, and commerce. It is an area not-lacking in accidental, nor in intentional, use of fallacious or misleading arguments.

Types of fallacies encountered include the following:

Equivocation – using a word in two different senses.

Nothing is brighter than the sun. A candle is brighter than nothing.

Therefore a candle is brighter than the sun.

False Dilemma – offering a single alternative to an action when in fact there are others.

Slippery Slope – ‘If this happens, it will lead to this, then to this’

The Straw-Man – choosing the strong points of one view to oppose the weak points of the other.

Begging the Question – assuming in the premise what the argument seeks to prove.

Some religious arguments to prove that god(s) exist are based on the premise that they do.

Use of Slogans – All creatures are equal, but some are more equal than others – (ex ‘Animal Farm’)
‘Make America Great Again – Vote Trump’

Force – To coerce acceptance - Laws have penalties for non-observance.

Appeals to Pity, to Authority’ to Academia, to Wealth, to Popularity, to Fashion, to ‘what everyone thinks’.

Ignorance – if nobody knows then anyone’s views are deemed to be acceptable

Minority Voices – given more attention than is given to the (silent?) majority voice.

Euphemisms – to disguise the reality – Idi Amin’s death squad were called ‘public safety units’.

Small Print – Makes it difficult for readers to assess important terms and conditions in retail.

Personal Attack – Destroying the message bearer rather than the argument’s logic.

Biased Statistics – numbers so chosen as to distort the overall picture.

Attribution – where the qualities of a part are wrongly attributed as pertaining to the whole.

Innuendo – Veiled hints which work to debase without having to provide evidence.

Double Meanings – It is left to the naivety of the target audience to choose wrongly.

The missing ‘All’ or ‘Some’ – An advert for tobacco “Men smoke Drum”

Deliberate Untruths – ‘Save \$500’ – ‘You have nothing to lose’ – ‘Absolutely free’ –
Kills 99.9% of germs – Buy one, get one free.

Emotive Content – The smiling subjects in adverts – car ads showing speed and power -
The starving children of Africa - save the koalas.

There is much meat in all of this – a veritable feast for a future session.

Keith Ashfold – Convener.