Name:: inzemam

ID:: 14599

Subject::: intro to logic

What is logic? What is the scope and significance of logic?

* Logic.

The term logic came from the Greek word “logos” which is something translated as sentence , discource , reason , thought.

* Definitions::

Logic is the name of a discipline which analyzes the meaning of the concepts common to all the sciences and establishes the general laws governing the concepts.

ALFRED TARSKI(1901-1983)

The science of reasoning , teaching the way of investigation unknown truth in connection with a thesis.

ROBERT KILWARDBY

The systematic use of symbolic and mathematical techniques to determine the form of valid deductive argument.

OXFPRD ENGLISH DICTIONARY

The formal systematic study of the principles of valid inference and correct reasoning.

PENGUIN ENCYLOPEDIA

* Explanation:

Logic is the study of reason and also a basic way of establishing conclusion. Logic is also study of truth. Logic is a tool to develop reasonable conclusions based on a given set of data. Where one can distinguish between good from bad and also logic try to evaluate arguments by checking wheither the premise is correct and what follow from them in conclusion really follow the premise. Logic is free of emotions and deals very specifically with information in its purest form. Without logic its not possible to arrive to the truth and its also science of how to evaluate arguments and reasoning and also it attempts to distinguishes good reasoning from bad reasoning. The validity of an argument is determine by its logical form , not by its content.

* History of logic::

History of logic is old and first developed in ancient times in Greece, China and India and Greek logic particularly Aristotelian logic found wide application and acceptance in western science and mathematics for millennia. Christian and Islamic philosophers such as Boethius(died 524), Ibn Sina(Avicenna, died 1037) and William of Ockham (died 1347) further developed Aristotle's logic in the , Middle Ages, reaching a high point in the mid-fourteenth century, with Jean Buridan.

* Scope and importance of logic::

The scope of logic is wide. Logic uses in many fields fo life because it’s a effective tool to determine the difference between valid and invalid argument. Now a days logic is a fundamental parts of our life and we use it in different sector of life. Which benefits us and also guide us through accurate result.

1. Logic used to identify argument and reasoning whether they are valid or faulty as they occur in the daily life.
2. Logic also used in public discussion.
3. It also used in medicines.
4. Its also useses in education sector.
5. Logic also use in Law and other professions.
6. Basis of learning methodology and decision making.
7. Catalyst of reason , the foundation of experimentation and the weakness of a lie.
8. Finding result we use logic to analyze

Q2. What is argument? Distinguish between inductive and deductive arguments with the help of sefl constructed examples?

* Argument::

Argument is series of sentences, statements, propositions where some are the premises and one is the conclusion and where the premises are intended to give a reason for the conclusion.

Or

An argument is a collection of statements , one of which is designated as the conclusion and the remainder of which are designated as the premises.

There are two parts of argument::

1. Premises
2. Conclusion

Premises::

What we pre suppose

Evidence for a conclusion

The starting part of an argument.

Conclusion::

What we conclude from the premises.

Conclusion must follow from the premises

Ahmad is afridi

Most afridi eat chicken

So ahmad ate chicken.

* Deductive argument ::

An argument in which the truth of the premises absolutely guarantee the truth of the conclusion.

It is an argument that is presented to be valid. Therefore, it cannot have a false conclusion when it is possible that all of its premises are true.( if premises are true, conclusion must be true).

A deductive argument is one in which true premises guarantee a true conclusion. In other words, it is impossible for the premises to be true but the conclusion false. Thus, the conclusion follows necessarily from the premises and inferences. In this way, a true premise is supposed to lead to a definitive proof truth for the claim (conclusion).

Theory

Hypothesis

Observation

Confirmation

Example ::

All philosophers have a brain.

Sokrates was a philosopher.

Therefore sokrates has a brain.

* Inductive argument::

An argument in which the premises are suppose to support the conclusion.

The truth of the premises gives good reason to believe the conclusion.

There are some arguments where premises support conclusion but do not guarantee that it’s true.

An inductive argument, sometimes considered bottom-up logic, is one in which premises offer strong support for a conclusion, but one that is not a certainty. This is an argument in which the premises are supposed to support the conclusion in such a way that if the premises are true, it is improbable that the conclusion would be false. Thus, the conclusion follows probably from the premises and inferences.

Theory

Hypothesis

Pattern

Observation

Most Chinese people have dark hair

Julie is Chinese

Therefore, Julie has dark hair

* Deductive argument vs inductive argument::
* It may seem that inductive arguments are weaker than deductive arguments because in a deductive argument there must always remain the possibility of premises arriving at false conclusions, but that is true only to a certain point. With deductive arguments, our conclusions are already contained, even if implicitly, in our premises. This means that a deductive argument offers no opportunity to arrive at new information or new ideas—at best, we are shown information which was obscured or unrecognized previously. Thus, the sure truth-preserving nature of deductive arguments comes at the expense of creative thinking.
* Inductive arguments, on the other hand, do provide us with new ideas and possibilities, and thus may expand our knowledge about the world in a way that is impossible for deductive arguments to achieve. Thus, while deductive arguments may be used most often with mathematics, most other fields of research make extensive use of inductive arguments due to their more open-ended structure. Scientific experiment and most creative endeavors, after all, begin with a "maybe," "probably" or "what if?" mode of thinking, and this is the world of inductive reasoning

1. Deduction move from idea to observation , while induction moves from observation to idea.
2. Deduction moves from more general to more specific , while induction moves from more specific to more general.
3. Deduction has theories that predict an outcome, which are tested experiments. Induction makes observation that lead to generalizations for how that thing works.

Q3::

* Fallacy::

A fallacy is an argument of a type that is generally recognized to be bad.

Or

A fallacy is a general type of appeal(or category of argument ) that resembles good reasoning , but that we should not find to be persuasive.

The term fallacy refers to error in reasoning.

Fallacies are defects that weaker arguments.

When there is a flaw or error in the way we put this argument together , we call this a fallacy.

* Some common types of fallacies::
* Ad hominem:::

Ad hominem are fallacy of relevance where someone criticize or reject another person point of view on basis of background or physical appearance or personal characteristics which are irrelevance to the argument at issue. In this we attack the other person not with our hands but with our tongue and which are irrelevant to the truth. When we speak about someone feature or other things which which has not connection with truth or issue basically if you do personal attacks to the person. This fallacy mainly used in politics where people not addressing the issue or their stance on it basically start bashing other people and start character assassination and do personal attacks.

* Appeal to ignorance:::

These fallacies occur when someone asserts a claim that must be accepted because no one else can prove otherwise. When we support those premises on basis of argument which we does not know the actual reality and there is no evidence present so we must accept the arguer conclusion on the subject because no one knows otherwise. Which maybe different what we thought and ignorance is not a proof of anything and only exception of this fallacy is qualified scientific research.

* Ad populum::

Also know is bandwagon fallacy, in this fallacy one try to convince people to do or believe something because everyone else do. Maybe it’s a common used fallacy we changed our mind or behavior when judged someone and when arguer say something about someone and people agree with it and our mind catch that so we also accept that he must be right because everyone agree with it. When you assume something is right or true because everyone does or doing.

* Appeal to authority:::

This fallacy happens when someone misuse an authority. The misuse of authority can occur in a number of ways. Opinion of a authority is used on a topic is evidence to support arguments. Like if we take example of home like your elder brother pressurized you for something or told you something and you don’t have other option but to accept what he said that’s where he misuse his authority. And many times those fallacy occurs when you blindfoldedly support someone and what he said must be true because you admire him. And in home when your mother told you something you must accept or agree with it due to his authority and sometimes misuse her authority.

* Red herring:::

A red herring is a distraction from the argument typically with some sentiment that seems to be relevant but isn’t really on topic. When someone want to distract from on going topic or does not interest in it so he uses this tactic to distract people from actual argument. This fallacy is difficult to identify and occur when someone uses irrelevant information to distract from the argument. Those arguments which are

relevant but not on topic. When arguer does not have evidence so he distract audience from actual arguments to raise side issues to waste time or distract them.

* Appeal to pity:::

Fallacy of relevance , personal attacks , and emotional appeals , aren’t strictly relevant to whether something is true or false. That’s the fallacy where emotion plays huge rule and this fallacy mainly happens when we mistaken feelings for facts. Truth and falsity are factual categories, not emotional categories and they deal what is and what is not , regardless of how one feels about the matter