D. Logic

Reasoning is the concern of the logician. This could be reasoning in science and medicine, in ethics and law, in politics and commerce, in sports and games, and in the mundane affairs of everyday living. Varied kinds of reasoning may be used, and all are of interest to the logician.

The term "logic" comes from the Greek word *logike* and was coined by Zeno, the Stoic (c.340–265BC). Etymologically, it means a treatise on matters pertaining to the human thought. It is important to underpin that logic does not provide us knowledge of the world directly, for logic is considered as a tool, and, therefore, does not contribute directly to the content of our thoughts. Logic is not interested in what we know regarding certain subjects. Its concern, rather, is the truth or the validity of our arguments regarding such objects.

Aristotle was the first philosopher to devise a logical method. He drew upon the emphasis on the “universal” in Socrates, negation in Parmenides and Plato, and the reduction to the absurd of Zeno of Elea. His philosophy is also based on claims about propositional structure and the body of argumentative techniques (e.g., legal reasoning and geometrical proof).

Aristotle understood truth to mean the agreement of knowledge with reality; truth exists when the mind's mental representations, otherwise known as ideas, correspond with things in the objective world. Logical reasoning makes us certain that our conclusions are true, and this provides us with accepted scientific proofs of universally valid propositions or statements. Since the time of Aristotle, the study of lies or fallacies has been considered an integral part of logic.

Zeno of Citium is one of the successors of Aristotle. He is also the founder of a movement known as Stoicism, derived from the Greek *Stoa Poikile* (Painted Porch). The Painted Porch referred to the portico in Athens where the early adherents held their regular meetings. Other more influential authors of logic then are Cicero, Porphyry, and Boethius, in the later Roman Empire; the Byzantine scholar—Philoponus and Al-Farabi, Avicenna, and Averroes in the Arab world.

Even before the time of Aristotle down to the present, the study of logic has remained important. We are human beings possessed with reason. We use it when we make decisions or when we try to influence the decisions of others or when we are engaged in argumentation and debate. Indeed, a person who has studied logic is more likely to reason correctly than another, who has never thought about the general principles involved in reasoning.
and pretensions of modern Western thought and culture since the Enlightenment. Postmodernism is not a philosophy. It is at best a holding pattern, perhaps a cry of despair. It rightly talks about world philosophy, the philosophy of many cultures, but such talk is not a philosophy either (Shields 2012).

For instance, reality cannot be known nor described objectively by postmodernists. The American philosopher Richard Rorty, notably developing themes from pragmatism and certain quarters of analytic philosophy and bringing these together with Continental themes, challenged the modern rationalist presumption that philosophy or any branch of knowledge can find secure foundations or achieve genuine representation of reality.

Postmodernists believe that humanity should come at truth beyond the rational to the non-rational elements of human nature, including the spiritual. Postmodernists consider that to arrive at truth, humanity should realize the limits of reason and objectivism. Beyond exalting individual analysis of truth, postmodernists adhere to a relational, holistic approach. Moreover, postmodernists value our existence in the world and in relation to it.

D. Analytic Tradition

"Can language objectively describe truth?" For the philosophers of this tradition, language cannot objectively describe truth. For Ludwig Wittgenstein, an analytic philosopher, language is socially conditioned. We understand the world solely in terms of our language games—that is, our linguistic, social constructs. Truth, as we perceive it, is itself socially constructed.

Analytic philosophy is the conviction that to some significant degree, philosophical problems, puzzles, and errors are rooted in language and can be solved or avoided by a sound understanding of language and careful attention to its workings. "Analysis" refers to a method; owing a great deal to the pioneers, Bertrand Russell, G.E. Moore, Wittgenstein, and J.L. Austin.

Critics are apt to point these concerns—they might say—this fixation with language and logic as one aspect of the trivialization of philosophy with which they charge the analytic movement. In any case, the last two to three decades have seen, on the one hand, increased self-searching as to the limitations of the analytic approach and more efforts to apply it to such deeper questions (Shields 2012).

E. Logic and Critical Thinking: Tools in Reasoning

Logic is centered in the analysis and construction of arguments. In the first chapter, logic is discussed as one of its main branches. Logic and critical
thinking serve as paths to freedom from half-truths and deceptions. Critical thinking is distinguishing facts and opinions or personal feelings. In making rational choices, first, we suspend beliefs and judgment until all facts have been gathered and considered.

Though facts are important, critical thinking also takes into consideration cultural systems, values, and beliefs. Critical thinking helps us uncover bias and prejudice and open to new ideas not necessarily in agreement with previous thought.

In general, there are two basic types of reasoning: deductive and inductive. **Inductive reasoning** is based from observations in order to make generalizations. This reasoning is often applied in prediction, forecasting, or behavior. **Deductive reasoning** draws conclusion from usually one broad judgment or definition and one more specific assertion, often an inference. Take for instance:

- All philosophers are wise. (Major premise)
- Confucius is a philosopher. (Minor premise)
- Therefore, Confucius is wise. (Conclusion)

**Validity and Soundness of an Argument**

Based on the previous example (or syllogism), if the two premises are constructed logically, then the conclusion must follow logically, the deductive argument is valid. This does not necessarily mean that the conclusion is true or false. Validity comes from a logical conclusion based on logically constructed premises (Reed 2010).

**Strength of an Argument**

On the other hand, inductive arguments cannot prove if the premises are true which will also determine the truth of the conclusion. Inductive reasoning proves only probable support to the conclusion. An inductive argument that succeeds in providing such probable support is a strong argument. While an inductive argument that fails to provide such support is weak, a strong argument with true premises is said to be cogent. For example:

Jay: Do you think Congressman Gerry will be re-elected?

Yna: I doubt it. His district has become more conservative in recent years. Also, 63% of the registered voters in his district are in the Opposition.

This argument is both a statistical argument and a predictive argument, which are two common patterns of inductive reasoning. Also, the conclusion does not follow necessarily from the premises.
Guided Learning:

Experiential Learning

1. Share your experiences on the times you did not use reason in your life but rather, you relied more on emotions or opinions of other people. What did you learn from the experience?

2. Research a topic for class debate.
   For example: So long as one does not harm others, an individual should be free to pursue his/her own ends. Agree /Disagree

3. Determine which are the premises and the conclusion:
   a. All known planets travel about the sun in elliptical orbits. Therefore, all planets travel about the sun in elliptical orbits.
   b. You have a very good circle of friends. Therefore, you are very good.
   c. All oranges are fruits. All fruits grow on trees. Therefore, all oranges grow on trees.

F. Fallacies

   On the other hand, a fallacy is a defect in an argument other than its having false premises. To detect fallacies, it is required to examine the argument’s content. Here are some of the usually committed errors in reasoning and thus, coming up with false conclusion and worse, distorting the truth.

   a. Appeal to pity (Argumentum ad misericordiam)
      A specific kind of appeal to emotion in which someone tries to win support for an argument or idea by exploiting his or her opponent’s feelings of pity or guilt.

   b. Appeal to ignorance (Argumentum ad ignorantiam)
      Whatever has not been proved false must be true, and vice versa.

   c. Equivocation
      This is a logical chain of reasoning of a term or a word several times, but giving the particular word a different meaning each time. Example: Human beings have hands; the clock has hands. He is drinking from the pitcher of water; he is a baseball pitcher.

   d. Composition
      This infers that something is true of the whole from the fact that it is true of some part of the whole. The reverse of this fallacy is division.
e. Division
One reason logically that something true of a thing must also be true of all or some of its parts.

f. Against the Person (Argumentum ad hominem)
This fallacy attempts to link the validity of a premise to a characteristic or belief of the person advocating the premise. However, in some instances, questions of personal conduct, character, motives, etc., are legitimate if relevant to the issue.

g. Appeal to force (Argumentum ad baculum)
An argument where force, coercion, or the threat of force, is given as a justification for a conclusion.

h. Appeal to the people (Argumentum ad populum)
An argument that appeals or exploits people's vanities, desire for esteem, and anchoring on popularity. Consider this illustration:

   ![Illustration of appeal to the people]

i. False cause (post hoc)
Since that event followed this one, that event must have been caused by this one. This fallacy is also referred to as coincidental correlation, or correlation not causation. This cartoon is an example:

   ![Illustration of false cause]

Guided Learning Activity

1. Cite examples of advertisements that might claim a certain product? Discuss with others? How can you account for the picture?

2. Role play: Analyze the argument visualized.
j. **Hasty generalization**

One commits errors if one reaches an inductive generalization based on insufficient evidence. The fallacy is commonly based on a broad conclusion upon the statistics of a survey of a small group that fails to sufficiently represent the whole population.

k. **Begging the question (petitio principii)**

This is a type of fallacy in which the proposition to be proven is assumed implicitly or explicitly in the premise.

**Guided Learning:**

1. Cite examples of how fallacies are used in daily life. For example, when you watch advertisements based on the popularity of endorsers, do you tend to buy their product? Did you use the fallacies of ad misericordiam or ad hominem toward others? How?

2. Role play: Act out a fallacy and let your classmates guess this particular fallacy.

**2.2. Analyze Situations that Show the Difference between Opinion and Truth**

**Applying Logic and Fallacies in Determining Truth from Opinion:**

At the beginning of the *Tractatus*, Ludwig Wittgenstein speaks of the picture that we can form of reality, and in which, by way of a model, we represent the existence and non-existence of state of affairs. *Tractatus* identifies the relationship between language and reality and to define the limits of science. It is recognized as a significant philosophical work of the twentieth century. It is in the possibility of agreeing or disagreeing with reality, thus being true or false, that the meaning of the picture lies.

The same thoughts occur later when Wittgenstein describes spoken and written language, that is, propositions, as one of these pictures and defines its meaning in terms of its capacity for being true or false. The limits of what can be said, therefore, are defined by the logical rules. The limits of my language mean the limit of my world. The logic of language shows how elements fit states of affairs and how state of affairs in wider constellations can be linked together; we can decide on the basis of this logic.
Moreover, Wittgenstein argues that the world "consists of states of affairs, not of things. These constellations can be reproduced in a picture, rather as the course of events in car accident for example, might be retraced in a court of law by the use of models. It is a case of projection in a picture, says Wittgenstein. It is not so much a case of reflection, therefore, because Wittgenstein also compares the picture and the reality with the score and music. Everyday language reproduces actual situations but there are extremely complicated and often opaque when seen through an impure use of words.

Over the years, in the author's view, the purpose of news reporting and journalism had irrevocably changed. If the purpose of a sentence is to inform or state a fact, some of its words must refer to things, events or properties. In other words, some of its words have cognitive meaning. However, words also have emotive meaning—that is, they also may have emotive whether positive or negative overtones. For the author, the United States war on "terror" had produced many emotively charged expressions such as "terrorists," "axis of evil," "band of zealots," and "Either you are with us or against us. Similarly, "good," "bad," "pretty," "fag," are emotively charged as well. Some positive or emotive overtones are "democracy," "strong republic," "good governance," "civil society," "peace" and "love." While "Politicians" and "whisky" tend to have mixed emotive meaning; "pencil," "river," and "run" are neutral terms.

Con artists take advantage of the emotive side of language in two very important ways. First, they use emotive meaning masked as cognitive meaning to whip up emotions so that reason gets overlooked. Secondly, they use emotively neutral terms of euphemisms to dull the force of what they say and, thus, make acceptable what otherwise might not be. The fallacy of the use of emotional words happens when one carefully employs words and images that are heavy with emotional connotations in order to secure the sympathies of others. In most political speeches by politicians and activists, words and symbols have been invested with rich meanings and can easily arouse the emotions and sympathies of the listeners, viewers, and readers.

Ignorance can be cloaked in a false aura of authority. This fact casts serious doubt on the general competence of news magazine writers who talk so flipantly on technical matters. Handouts for instance are fed to news reporters by government agencies and others who speak English. This is why most news journals or news reports give the same details. Some correspondents are also culturally incompetent who are not aware of the language or customs of the countries that they are sent (Copi & Cohen 2010).