CRITICAL THINKING

1. Chapter One- Introducing Philosophy
2. Chapter Two- Basic Concepts Of Logic
3. Chapter Three- Logic And Language
4. Chapter Four- Basic Concepts Of Critical Thinking
5. Chapter Five- Informal Fallacies
6. Chapter Six- Categorical Propositions

Chapter One
Introducing Philosophy

- **Questions for discussion**

1.What is philosophy?
2.Why is defining philosophy accurately/ precisely so difficult ?
3.What is (love of) wisdom and who is wise?
4.What is the feature of philosophy
5. what is the methodological difference between philosophy and other sciences?
6.What are the branches of philosophy…….
7.What is the importance of learning philosophy?

Basic Features of Philosophy

- **Philosophy is:**
  - ✓ **set of views or beliefs about life and the universe**
  - ✓ **process of reflecting and criticizing most deeply held conceptions and beliefs**
  - ✓ **rational attempt to look at the world as a whole**
  - ✓ **logical analysis of language and clarification of the meaning of words and concepts**
  - ✓ **group of perennial problems where philosophers always have sought to answers.**

Core branches of Philosophy

- Philosophy has different primary and secondary branches
  - **Metaphysics-** philosophical study of reality/existence
  - **Epistemology** - philosophical study of knowledge/truth
  - **Axiology-** philosophical study of value/worth of sth.
  - **Logic-** study of argument/ reason

1. Metaphysics

- **Etymologically: derived from the Greek words "meta" means (—beyond, —upon or —after) and physika, means (—physics)--- Literally to mean 'things after the physics'**

- **studies the ultimate nature of reality**

- **seek an irreducible foundation of reality where knowledge can induced/deduced**
- **Deals with issues of**
  - ✓ **Reality God, freedom, soul/immortality**
  - ✓ **the mind-body problem, form and substance**
  - ✓ **relationship, cause and effect relationship**

- **Here are some of the questions that Metaphysics primarily deals with:**
  - ***What is reality?***
  - ***What is the ultimately real?***
  - ***What is the nature of the ultimate reality?***
  - ***is it one thing or is it many different things?***
  - ***Can reality be grasped by the senses, or it is transcendent?***
  - ***What makes reality different from a mere appearance?***
  - ***What is mind, and what is its relation to the body?***
  - ***is there a cause and effect relationship between reality and appearance?***
  - ***Does God exist, and if so, can we prove it?***

- **Metaphysical questions may be divided into four subsets or aspects:**

I. Cosmological Aspect:

- study of theories about the origin, nature, and development of the universe as an orderly system
- **Cosmological questions**
  - ***How did the universe originate and develop?***
  - ***Did it come about by accident or design?***
  - ***Does its existence have any purpose***

II. Theological Aspect

- part of religious theory that deals about God
- **Theological question**
  - ***Is there a God?***
  - ***If so, is there one or more than one?***
  - ***What are the attributes of God?***
  - ***If God is both all good and all powerful, why does evil exist?***
  - ***If God exists, what is His relationship to human beings and the real 'world of everyday life?***

III: Anthropological Aspect

- **deals with the study of human beings**
- **Anthropological questions**
  - ✓ ***What is the relation between mind and body?***
  - ✓ ***Is mind more fundamental than body, with body depending on mind, or vice versa?***
  - ✓ ***What is humanity‘s moral status?***
  - ✓ ***Are people born good, evil, or morally neutral?***

IV: Ontology

- ✓ **Study the ultimate nature of reality/existence**
- ✓ **Ontological questions**
  - ***Is basic reality found in matter or physical energy***
  - ***is it found in spirit or spiritual***

2. Epistemology

- **Derived from Greek words --*episteme, meaning — knowledge, understanding, and logos, meaning —study of* - literary to mean the study of truth/knowledge**
- **Deals with nature, scope, meaning, and possibility of knowledge**
- **deals with issues of knowledge, opinion, truth, falsity, reason, experience, and faith**
- **Deals with the dependability of knowledge and the validity of sources**
- **Hence, the study of knowledge Involves three main areas**
  - ✓ ***The source of knowledge –ways to knowledge***
  - ✓ ***Nature of the knowledge-***
  - ✓ ***The validity of the knowledge***

- **The following are among the questions/issues with which Epistemology deals:**
  - ***What is knowledge?***
  - ***What does it mean to know?***
  - ***What is the source of knowledge? Experience? Reason? Or both?***
  - ***How can we be sure that what we perceive through our senses is correct?***
  - ***What makes knowledge different from belief or opinion?***
  - ***What is truth, and how can we know a statement is true?***
  - ***Can reason really help us to know***

- **Epistemology seeks answers to a number of fundamental issues**
  - ✓ **whether reality can even be known**
  - ✓ **whether truth is relative or absolute**
  - ✓ **Whether truth is subjected to change or not**
- **The other major aspect of Epistemology is about the sources of human knowledge**
  - ✓ **Empiricism----------Sense Experience**
  - ✓ **Rationalism- -------Reason /Thought**
  - ✓ **Intuition- ----------Direct apprehension**
  - ✓ **Revelation- ---------Supernatural being(from God)**
  - ✓ **Authority- ---------Expertise/professionals**

1. Empiricism

- **knowledge appears to be built into the very nature of human experience**
- **Sensory knowing is immediate and universal**
- **Weakness**
  - ✓ **data obtained from human senses is incomplete and undependable.**
    i.e. Fatigue, frustration, and illness may distort and limit sensory perception
  - ✓ **there are inaudible and invisible things that can not be identified by sense**
- **Advantage of empirical knowledge**
  - ✓ **many sensory experiences and experiments are open to both replication and public examination**

2. Rationalism

- ✓ Reason is source of knowledge
- ✓ emphasis on capability of humanity‘s power of thought and the mind
- ✓ humans are capable of arriving at irrefutable knowledge independently of sensory experience
- ✓ Senses alone cannot provide consistent universal, valid judgments
- ✓ Data obtain through senses are raw material-k/dge
- ✓ people have the power to know with ~~certainty various truths about the universe~~ that the senses alone cannot give

Intuition

- direct apprehension(grasping) of knowledge
- Not derived from reasoning or sense perception
- immediate feeling of certainty OR sudden flash of Insight
- source of both religious and secular knowledge
- Source for many scientific advancements - confirmed by experimentation
- The weakness or danger of intuition
  - ✓ When it used alone it may
    - goes astray very easily
    - lead to absurd claims

4. Revelation

- **Primary source of knowledge in religion**
- **presupposes a transcendent supernatural reality**
- **Used as omniscient source of information**
- **The truth revealed is absolute and uncontaminated information**
- **Limitation**
  - ✓ **Knowledge can be distorted through time**
  - ✓ **Accepted by faith and cannot be proved or disproved empirically**

5. Authority :accepted as true because it comes from experts

N.B: ***one source of information alone might not be capable of supplying people with all***

3. Axiology

- **Derived from Greek words - *Axios, meaning —value, worth, and —logos, meaning —study* to mean the study of value/worth of something**
- **Axiology asks the philosophical questions of values that deal with *notions of what a person or a society regards as good or preferable* such as:**
  - ✓**What is a value?**
  - ✓**Where do values come from?**
  - ✓**How do we justify our values?**
  - ✓**How do we know what is valuable?**
  - ✓**What is the relationship between values and knowledge?**
  - ✓**What kinds of values exist?**
  - ✓**Can it be demonstrated that one value is better than another?**

3. There are Three different area of axiology
   I. Ethics
   II. Aesthetics
   III. Social/political philosophy-

I. **Ethics :** philosophical study of principles used to judge human actions as good/bad/right/wrong

- **Normative ethics:**
  - ✓ Teleological Ethics
  - ✓ Deontological Ethics
  - ✓ Virtue Ethics
- **Meta- ethics:**
- **Applied Ethics:**

II. Aesthetics

- Aesthetics is the theory of beauty
- studies particular value of our artistic and aesthetic experiences.
- deals with beauty, art, enjoyment, sensory/emotional values, perception, and matters of taste and sentiment
- **The following are typical Aesthetic questions:**
  - What is art?
  - What is beauty?
  - What is the relation between art and beauty?
  - What is the connection between art, beauty, and truth?

III. Social/Political Philosophy

- studies about of the value judgments operating in a civil society
- **The following questions are some of the major Social/Political Philosophy primarily deals with:**
  - ✓ What economic system is best?
  - ✓ What form of government is best?
  - ✓ What is justice/injustice?
  - ✓ What makes an action/judgment just/unjust?
  - ✓ What is society?
  - ✓ Does society exist? If it does, how does it come to existence?
  - ✓ How are civil society and government come to exist?
  - ✓ Are we obligated to obey all laws of the State?
  - ✓ What is the purpose of government?

- **Importance of learning philosophy**
  - **Intellectual and behavioral independence**
  - **Reflective Self-Awareness**
  - **Flexibility**
  - **Tolerance**
  - **Open-Mindedness**
  - **Creative and Critical Thinking**
  - **Conceptualized and well-thought-out value systems**
  - **helps us to deal with the uncertainty of living**

End Of Chapter One

Thank you!

Chapter2
Basic Concepts of Logic

Chapter Objectives:

- **after the successful completion of this chapter, you will be able to:**
  - ✓ **Understand the meaning and basic concepts of logic;**
  - ✓ **Understand the meaning, components, and types of arguments; and**
  - ✓ **Recognize the major techniques of recognizing and evaluating arguments.**

Brainstorming question

1. **What is logic?**
2. **What is the significance of learning logic for you?**

Logic:

- Comes from Greek word ’logos’ to mean discourse", "reason", "rule
  - a science that evaluates arguments
  - study of methods and principles of correct reasoning
  - develop the method and principles for evaluating arguments
  - primary tool philosophers use in their inquiries
  - attempt to codify the rules of rational thought
  - in logic we study reasoning itself:
    - ✓ forms of argument
    - ✓ general principles and
    - ✓ particular errors
    - ✓ along with methods of arguing

Question 2

1. What is argument, statement ,premise and conclusion ?

Argument ,premise and conclusion

- **Argument is the primary focus of logic**
- **Argument is group of statements**
  - ✓ **One/more of which claimed to provide evidence**
  - ✓ **one of the other follows the evidence**
- **From The definition**
  - ✓ ***An argument is a group of statements***
  - ✓ ***The statement/s divided into premise(s) and conclusion***
- **Statement :declarative sentence with truth-value**
- **Argument always attempts to justify a claim i.e.**
  - **claim that the statement attempts to justify -C**
  - **statements that supposedly justify the claim -P**
- **Therefore, An Argument is always composed of P & C**

- **Sentences: group of words or phrases that enables us to express ideas meaningfully**
- **sentence: may or may not have truth value**
- **Sentences of the following type are not statements**
  - ***Would you close the window? (Question)***
  - ***Let us study together. (Proposal)***
  - ***Right on! (Exclamation)***
  - ***I suggest that you to read philosophy texts. (Suggestion)***
  - ***Give me your ID Card, Now! (Command)***

Examples

- **All Ethiopians are Africans.**
  Tsionawit is an Ethiopian
  Therefore, _Tsionawit_ is an African
- ***Some Africans are black***
  Zelalem *is african*
  Therefore,* Zelalem *is black
- **All crimes are violation of law**
  Theft is a crime
  Therefore ,theft is a violation of law
- ***Some crimes are misdemeanor***
  Murder is a crime
  Therefore ,murder is misdemeanor

Identifying conclusion and premise

- **Logic: evaluates and analyses arguments**
- **important tasks in the analysis of arguments is to distinguishing premises &conclusion**
- ***two criteria* are applied to identify C&P**
  1. **looking at an indicator word**
- **Premise indicators words :**
  - ***Since, Because, As indicated by, May be inferred from***
  - ***Owing to, in as much as, in that, for the reason that***
  - ***given that, seeing that, as, for…etc.***
- **Conclusion indicators words :**
  - ***Therefore, Hence, So, Wherefore, Accordingly***
  - ***Whence, It follows that, It must be that, Thus***
  - ***As a result, We may infer, Consequently***

Examples

- *Women are mammals. Zenebech is a woman. Therefore, Zenebech is a mammal.*
- ***You should avoid any form of cheating on exams because cheating on exams is punishable by the Senate Legislation of the University.***
- ***The development of high temperature super conducting materials is technologically justifiable, for such materials will allow electricity to be transmitted without loss over great distances, and they will pave the way for trains that levitate magnetically.***
- ***A Federal government usually possesses a constitution, which guarantees power sharing between the federal and regional governments. This implies that distribution of power is the salient feature of any federal government.***

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2. Inferential claims

- **It refers to the *reasoning process* expressed by the argument which exist *between the premises and the conclusion of arguments.***
- **Use this If an argument contains no indicator words at all**
- **To identify P& C responding to either of the following questions.**
  - ✓**Which statement is claimed to follow from others?**
  - ✓ **What is the arguer trying to arrive at /prove?**
  - ✓**What is the main point of the passage?**
- **The answers to these questions should point to the conclusion.**

Example:

- **Our country should increase the quality and quantity of its military. Ethnic conflicts are recently intensified; boarder conflicts are escalating; international terrorist activities are increasing.**

- **Socialized medicine is not recommended because it would result in a reduction in the overall quality of medical care available to the average citizen. In addition, it might very well bankrupt the federal treasury. This is the whole case against socialized medicine in a nutshell.**

- **The space program deserves increased expenditures in the years ahead. Not only does the national defense depend up on it, but the program will more than pay for itself in terms of technological spinoffs. Furthermore, at current funding levels the program cannot fullfill its anticipated potential.**

Answer:

- **P1=Ethnic conflicts are recently intensified.**

  P2=Boarder conflicts are escalating.

  P3=International terrorist activities are increasing.

  C= Thus, the country should increase the quality and quantity of its military.

- **P1=Socialized medicine result in a reduction in the overall quality of medical care available to the average citizen.**

  P2=Socialized medicine might very well bankrupt the federal treasury.

  C= therefore, Socialized medicine is not recommended

Answer:

- **P1=The national defense is dependent up on the space program.**

  P2=The space program will more than pay for itself in terms of technological spinoffs.

  P3=At current funding levels the space program cannot fullfill its anticipated potential.

  C=The space program deserves increased expenditures in the years ahead.

Self check Exercises

BOOK: concise introduction to logic

1. **page 7 Exercise 1.1. LC (I)- identifying premise and conclusion**
2. **Page 13 exercise 1.1. III- definition of terms**
3. **Page 13 exercise 1.1. IV- TRUE/False**

Techniques of Recognizing Arguments

- **All passages may not contain an argument.**
- **To distinguish argument from non- argument**
  1. **Existence of Indicator words**
  2. **Existence of Inferential claim between statements**
  3. **Know Typical** Non-argumentative passages

1. Existence of indicator words

- **Since Edison invented the phonograph, there have been many technological developments.**
- **Since Edison invented the phonograph, he deserves credit for a major technological development**

2. Inferential claim

- **a passage contains an argument if it purports to prove something; if it does not do so, it does not contain an argument.**
- ***Any passage is labeled as an argument if and only if it fulfills the following two conditions:***
  1. **At least one of the statement must claim to provide reason or evidence**
  2. **There must be a claim that something is followed from the evidence**

Questions for discussion

- **with in an argument , is it mandatory for the Premises to present actual evidence or true reasons to the conclusion?**
- **Which one should be mandatory for a passage to be an argument: factual claim or inferential claim?**

- **It is not necessary/ mandatory for the premises to present actual evidence or true reasons**

- **But at least the premises must claim to present evidence or reasons, and there must be a claim that the evidence or reasons support or imply something**

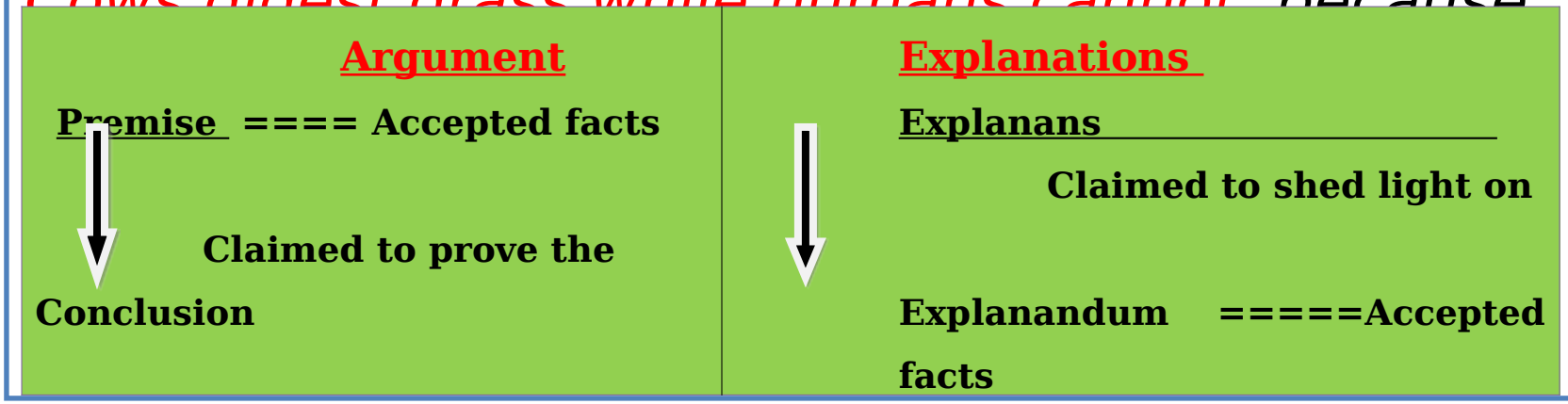
3. Non-argumentative passages

- **Warning**: contains cautionary advices
- **Piece of advice** : contain counseling or guidelines
- **belief/ opinion**: belief of someone on different events
- **Report**: convey information about events
- **Expository passage**: topic and sub topic sentences
- **Illustration**: clarifying instances of different matters
- **Explanation**: shed light on certain phenomenon
- **Conditional Statements**: express cause and effect of events

- **Explanation and argument:**
- **In explanation**
  - **two components: Explanans and Explanandum**
  - **Intends to shed light on some event**
  - **The event in question is usually accepted as a fact**

Example

Cows digest grass while humans cannot because



- **Conditional Statements and argument**
  - **an “if…, then…”statement,**
  - **has two component: “Antecedent and Consequent’’**
  - **if *antecedent* then *consequent* or *Consequent* If *antecedent***
  - **The relation between conditional statements and arguments may now be summarized as follows:**
    - ***A single conditional statement is not an argument.***
    - ***A conditional statement may serve as either the premise***

    or the conclusion
    - ***The inferential content of a conditional statement may be re-expressed to form an argument*.**

    example

If you study hard ,then you will score good grade.

- **A---Sufficient condition …B:**
  - ✓ **whenever the occurrence of ‘A’ is needed for the occurrence of ‘B**
  - ✓ ***A is a sufficient condition for B; if A occurs, then B must occur.***
- **A….Necessary condition….B:**
  - ✓ **whenever B cannot occurred in the absence of A.**
  - ✓ ***A is a necessary condition for B; if B occur, then A must occur.***

E.g.

- **Being a dog is _____ condition for being an animal**
- **Being stabbed by a knife is ____ condition for scare to be created on your body**
- **Having four side is a_____for being a Square.**

Self check Exercises

BOOK: concise introduction to logic

1. **page 25 Exercise 1.2. LC (I)- identifying argument and none argument**
2. **Page 32 exercise 1.2. Iv- definition of terms**
3. **Page 32 exercise 1.2. V- TRUE/False**

TYPES OF ARGUMENTS

- **Every argument involves an inferential claim**
- **Depending on the inferential relation between p & c**

    1. deductive argument

    2. Inductive argument

1. Deductive Arguments

- **Its impossible for the conclusion to be false given that the premises are true**
- **conclusion follows the premise with necessity**
- **involve necessary reasoning.**
- **Example 1: *All philosophers are critical thinkers.***

  Socrates is a philosopher

  Therefore, Socrates is a critical thinker
- ***Example2: All African footballers are blacks***

  Messi is an African footballer

  It follows that, Messi is black

2. Inductive Arguments

- **it is improbable for the conclusion to be false given that the premises are true.**
- **the conclusion follow the premise only with probability**
- **It involves probabilistic reasoning.**

- ***Example1: Most African leaders are blacks.***
  Mandela was an African leader
  Therefore, probably Mandela was black.
- **Example2: *Almost all women are mammals.***
  Hanan is a woman.
  Hence, Hanan is a mammal.

- **Differentiating Deductive and Inductive Arguments**
  - **criteria to differentiate DA & IA**

1. The occurrence of special indicator words

- **Certainly, Necessarily, Absolutely, Definitely=deductive**
- **Probable‖ , Improbable, Plausible,‘ Implausible,‘‘ likely, unlikely===Inductive argument**

2. The actual strength of the inferential link between premises and conclusion

- **All Ethiopian love their country.**

  Debebe is an Ethiopian.

  Therefore, Debebe loves his country.

- **majority of Ethiopian are poor.**

  Alamudin is an Ethiopian.

  Therefore, Alamudin is poor

3. *The character or form of argumentation the arguers use*

- **Some typical deductive arguments**
  - **arguments based on Mathematics**
  - **argument based on definition**
  - **categorical syllogism**
  - **Hypothetical syllogism**
  - **Disjunctive Syllogism**
- **Some typical Inductive Arguments**
  - **Arguments of Prediction**
  - **argument from analogy**
  - **argument from authority**
  - **inductive generalization**
  - **argument based on signs**
  - **argument based on causation**

Instances of deductive argument

1. arguments based on Mathematics

- **C depends on arithmetic/ geometric computation**
- **Exception: arguments of statistics =inductive argument**

Example:

- ✓ **you can measure a square pieces of land and after determining it is ten meter on each side conclude that its area is a hundred square meter.**
- ✓ ***The sum of two odd numbers is always even. Thus, the sum of 3 and 9 is an even number.***
- ✓ **Since triangle A is congruent with triangle B, and triangle A is isosceles, it follows that triangle B is isosceles.**

2. Arguments based on definition:

- **conclusion depend on the definition of some words or phrase used in the premise**

Example:

- **Angel is honest; it is follows that Angel tells the truth.**
- **Kebede is a physician; therefore, he is a doctor**
- ***God is omniscient, it follows that He knows everything***

***3. Categorical syllogism*:**

- **statement begins with one of the words all, no and some**

Example:

- ***All Egyptians are Muslims. No Muslim is a Christian. Hence, no Egyptian is a Christian.***

4. Hypothetical Syllogism

- have conditional statement for one or both of its premises
- "If…then statement.

  IF A then B.

  If B then C.

  Therefore , If A then C.

Example:

P1=If you study hard, then you will graduate with Distinction.

P2=If you graduate with Distinction, then you will get a rewarding job.

C=Therefore, if you study hard, then you will get a rewarding job.

5. Disjunctive Syllogism :

- **begin with an "Either…or …" phrase**
- **Either A or B. not A .Therefore B**

Example

Rewina is either Ethiopian or Eritrean.
Rewina is not Eritrean.
Therefore, Rewina is Ethiopian

Either Italy or Ethiopia won the military incident of Adwa.
Italy did not win the military incident of Adwa.
Therefore, Ethiopia won the military incident of Adwa

- ***Instances of Inductive Argumentative Forms***
  - **Arguments of Prediction**
  - **Inductive generalization**
  - **Argument from authority**
  - **Argument based on certain signs**
  - **Argument from analogy**
  - **Argument based on causation**

1. Prediction

- **premises deals with some known event in the present or the past and the conclusions moves beyond this event to some event to relative future**

Example

- **one may argue that because certain clouds develop in the center of the highland, a rain will fall within twenty-four hours.**
- ***It has been raining for the whole day of this week. This shows that it will rain for the coming week.***

2. An argument from analogy:

- depends on the existence of similarity between two things or state of affairs
- certain conditions that affects the **better-known situation** is concluded to affect the **lesser known situation**

For instance

- Computer A is manufactured in 2012; easy to access and fast in processing; Computer B is also manufactured in 2012; easy to access. It follows that, Computer B is also fast in processing.

3. An inductive generalization:

- proceeds from the knowledge of a selected sample to claim about the whole group
- Claim: Since the sample have a certain (X) characteristics, all members of the group have the same (X) characteristics.

For example

- one may argue that because three out of four people in a single prison are black, one may conclude that three-fourth of prison populations are blacks.

4. An argument from authority:

- **conclusions rest upon a statement made by some presumed authority or witness**

for instance:

- **A lawyer may argue that the person is guilty because an eye witness testifies to that effect under oath**
- **all matters are made up of a small particles called —quarks because the University Professor said so.**

5. Arguments based on sign:

- **Proceeds from the knowledge of a certain sign to the knowledge the sign symbolizes.**

For instance

- **after observing _No Parking‘ sign posted on the side of a road, one may infer that the area is not allowed for parking.**

6. An argument based on causation:

- **Depends on instances of cause and effect which can never be known with absolute certainty**

Example

- **from the knowledge that a bottle of water had been accidentally left in the freezer overnight, someone might conclude that it had frozen (cause to effect).**
- **after tasting a piece of chicken and finding it dry and tough, one might conclude that it had been overcooked (effect to cause).**
- **The meat is dry so that it had been over cooked ⇒ effect to cause**

- **Evaluating Arguments: deductive and inductive**
  - **Deductive argument**
    - ✓ Valid and invalid
    - ✓ sound and unsound
  - **Inductive argument**
    - ✓ Strong and weak
    - ✓ Cogent and un-cogent

❖ Deductive Argument :Validity and soundness

- **Valid deductive argument**
  - **if the premises are assumed true, it is impossible for the conclusion to be false**
  - **conclusion follows the premises with strict necessity**
  - **connection b/n P&C is a matter of certainty**
- **Invalid deductive argument:**
  - **if the premises are assumed true, it is possible for the conclusion to be false.**

Examples

- ***All men are mammals. All bulls are men. Therefore, all bulls are mammals.***
- ***All philosophers are rational. Socrates was rational. Therefore, Socrates was a philosopher.***

validity and Truth value

- ✓ **No direct relationship b/n validity and truth value of statements**
- ✓ **Exception: an argument T=P & F=C is always invalid**
- ✓ **Therefore , An argument** has the following ***four possibilities***

Premise	Conclusion	Valid	Invalid
True	True	✓	✓
False	False	✓	✓
True	False	X	invalid
False	True	✓	✓

- **Validity is not determined by actual truth value of premise/conclusion rather by *FORM***

- ***Possibility # 1:*** **:A combination of *True premises and True conclusion* allows for both valid and invalid arguments**

A. Valid

All women are mammals.

My mother is a mammal.

Therefore, my mother is a woman.

B. Invalid

All philosophers are critical thinkers.

Plato was a critical thinker.

Therefore, Plato was a philosopher.

- ***Possibility # 2:*** **A combination of *True premises and false conclusion* allows only for invalid arguments.**

Invalid

All biologists are scientists.

John Nash was a scientist.

Therefore, John Nash was a biologist.

- ***Possibility # 3:*** **A combination of *False premises and True conclusion* allows for both valid and invalid arguments.**

valid	**Invalid**
• ***All birds are mammals.***	***All birds are mammals.***
• ***All women are birds.***	***All ostriches are mammals***
• ***Therefore, all women are mammals.***	***Therefore, all ostriches are birds.***

- ***Possibility # 4:*** **A combination of *False premises and False conclusion* allows for both valid and invalid arguments.**

valid	**Invalid**
All Americans are Ethiopians.	***All birds are mammals***
All Egyptians are Americans.	***All ants are mammals***
Thus, all Egyptians are Ethiopians.	***Therefore, all ants are birds.***

Soundness of deductive argument

- **A *sound argument* is a deductive argument that is *valid* and has *all true premises.***
- **Argument is sound if**
  - ✓ **The argument is valid**
  - ✓ **It has all actually true P**
- **if either of these is missed the argument is unsound**

Evaluating Inductive Arguments: Strength, Truth

- **strong inductive argument**
  - ***f they are assumed true, it is improbable for the conclusions to be false.***
  - ***conclusion follows probably from the premises***
- **weak inductive argument**
  - ***if the premises are assumed true, it is probable for the conclusions to be false.***

Example

- ***This barrel contains one hundred apples. Eighty apples selected at random were found tasty. Therefore, probably all one hundred apples are tasty***
- ***This barrel contains one hundred apples. Three apples selected at random were found tasty. Therefore, probably all one hundred apples are tasty.***

- ***Strength and Truth Value***
  - ✓ **No direct relationship b/n S/W and truth value of statements**
  - ✓ **Exception: an argument T=P & probably F=C is always Weak**
  - ✓ **Therefore , An argument with :**

Premise	Conclusion	Strong	Weak
True	Pro. True	✓	✓
False	Pro. False	✓	✓
True	Pro. False	X	Weak
False	Pro. True	✓	✓

  - ✓ **Strength and weakness is not a matter of actual truth value rather DEGEREE**

Cogency of inductive argument

- **Cogent argument is *strong* and has *all true premises.***
- **cogent argument has two essential features:**
  - ✓ **Should be *strong* and**
  - ✓ ***all its premises should be true***
- **If one of these two conditions is missed, the argument would be un-cogent.**

Example:

Nearly all lemons that have been tasted were sour. Therefore, nearly all lemons are sour.

Benefits of learning logic

- Refine and sharpen one's natural ability to reason and argue
- develop skill needed to evaluate & construct good arguments
- develop skill needed to construct fallacy-free arguments
- provides fundamental defense against the prejudiced and uncivilized attitudes
- helps to distinguish good arguments from bad argument
- helps to identify confusions common logical errors
- enables us to disclose ill-conceived policies in the political sphere
- identify and avoid common errors in reasoning
- Increase in confidence in our views in writing, speech etc.
- Helps us to become reasonable
- Improve the quality of argument we use
- Helps us to be critical thinker
- Enables us to think clearly and accurately
- Secures us from manipulations
- Helps us to make better personal decision
- Help to learn strategies for thinking and reasoning well
- overall goals of logic = producing critical, rational and reasonable individuals(public and private life)

Summary *of* chapter- *one*

- **Logic- evaluates an argument /philosophical sdudy of principles**
- **Argument –group of statements composed of P&C**
- **Statement – declarative sentence having a truth value**
- **Non-statement – sentences which doesn't have T.Value**
- **Criteria To identify P&C: Indicator words & IN. Claim**
- **Criteria To distinguish argument from non- argument**
  - **Indicator words , Inferential claim , Non-inferential passages**
- **To identify deductive & inductive argument focus on:**

Typical deductive argument	Typical inductive argument
1.Argument of mathematics	1.Arguments of prediction
2.Argument of definition	2.Arguments of generalization
3.Categorical syllogism	3.Arguments of authority
4.Hypothetical syllogism	4.Arguments of sign
5.Disjunctive syllogism	5.Arguments of analogy
	6.Arguments of causation

Deductive Argument	Inductive argument
If we assume the P=T , IMPOSSIBLE for C=F or	If we assume the P=T , IMPROBABLE for C=F
The relationship b/n P&C is a matter of necessity	The relationship b/n P&C is a matter of probability
The C follow the premise with certainty	The C follow the premise with likelihood
Valid : if we assume P=T ,its IMPOSSIBLE for the C=F	Strong: If we assume the P=T , IMPROBABLE for C=F
Invalid :Valid : if we assume P=T ,its POSSIBLE for the C=F	Weak :If we assume the P=T , probable for C=F
validity is not a matter of actual truth value of statements rather a mater of FORM	Strength/weakness is not a matter of actual truth value of statements rather a mater of degree
Hence no direct	Hence no direct

Deductive Argument	INDUCTIVE ARGUMENT
❑SOUND : Must fulfill two criteria 1.Valid 2.all actually true premises	❑COGENT : Must fulfill two criteria 1.Strong 2.all actually true premises
❑IF fail to fulfill the above criteria=UNSOUND	❑IF fail to fulfill the above criteria=UNCOGENT
❑All SOUND arguments are VALID arguments	❑All COGENT arguments are STRONG arguments
❑All INVALID arguments are UNSOUND arguments	❑All WEAK arguments are UNCOGENT arguments
❑VALID argument can be UN/SOUND depending on the actual truth value of its statements	❑STRONG argument can be UN/COGENT depending on the actual truth value of its statements

THANK YOU!

Chapter two

Logic and Language

Chapter two

- **Logic and Language**

Function of Language

- **Cognitive meaning/function**
- **Emotive meaning/function**

***Examples*:**

- ***The first written constitution of Ethiopia was formulated in 1931.***

  However the first federal constitution is effected since 1995.

- ***Death Penalty is the final, cruel and inhuman form of all punishments where hapless prisoners are taken from their cells and terribly slaughtered***

Intentional and extensional meaning of terms

- **Terms** made up of words - serve as a subject of a statement
- **Terms** includes:
  - ✓ proper names,
  - ✓ common names
  - ✓ descriptive phrases
- Words - symbols and the entity they symbolize- meaning.
- terms have two kind of meaning :
  - ✓ Intensional meaning
  - ✓ Extensional meanings

❑ Intentional meaning of terms

- **Attribute of the term being connoted**
- **subjective : vary from person to person.**
- **To avoid subjective meaning - conventional connotation**
- **can be expressed in terms of increasing and decreasing intentions**
  - **Increasing intention:**
    - ✓ **each term in the series connotes more attribute than the one preceding it.**

    Decreasing intention:
    - ✓ **each term in the series connotes less attribute than the one preceding it.**

❑ Extensional [denotative] meaning of terms

- **Refers to the members that the term denotes**
- **remains the same to all but**
- **may be changed with the passage of time – Empty extension.**
- **can be expressed in terms of increasing /decreasing extension.**
  - **Increasing extension: each term in the series denotes more members than the one preceding it**
  - **Decreasing extension: each term in the series denotes less members than the one preceding it**
- **Intentional meaning determines extensional meaning of terms**

❑ Types of definition and their purpose

1. Stipulative definitions

- Assign meaning for the first time
- Names are assigned arbitrarily &
- caused by new phenomena and developments
- Definition/statements doesn’t have truth value
- Purpose : simplifying complex expressions
- used to set up new secret codes

Examples:

- Logphobia” means fear of taking logic course.
- A male tiger + female lion =tigon
- Operation Barbarossa – Nazi invasion of USSR
- Operation sunset – Ethio-Eritrea war(1998)

2. Lexical definitions:

- **It reports the meaning of the word actually exist in dictionary**
- **Provides Dictionary meaning of terms**
- **Purpose: to avoid ambiguity**

Examples:

3. Precise definition:

- **Intended to reduce vagueness**
- **Definition should be appropriate and legitimate to the context in which the term is employed**

Examples

- ***High" means, in regard to the interest rates, at least two points above the prime rate***
- ***"Antique" means, at least 100 years old***

4. Theoretical definition :

- **Assign meaning to a word by suggesting theories**
- **theoretical definitions provide a way for further experimental investigations**

Example : *''Heat" means the energy associated with the random motion of molecules*

5. Persuasive definition

- **Purpose: to engender a Un/favorable attitudes**
- **To influence attitude of reader/ listeners**
- **Use value laden[emotively charged] words**

❑ Extensional definition techniques

1. Ostensive[demonstrative] technique

- **Is the traditional way of defining terms**
- **Use pointing as a technique to define terms**
- **Is limited by time and space**

2. Enumerative technique

- **Assign meaning by naming members individually**
- **It can be partial or complete**

3. Definition by subclass

- **Assign meaning by naming the subclass of the class.**
- **it can be partial or complete**

Example :Tree" means an Oak, Eucalyptus, olive, juniper

❑ Intentional definitional techniques

1. Synonyms definition

- **The definiens is a synonym of the word being defined**
- **Single word is highly appropriate**

Example :*“Obese” Means fat*

2. An etymological definition

- **Assign meanings to a word by disclosing its ancestry**
- **enables us to get the historical details of the word**

Example: *“Virtue” is derived from Latin virtues- means strength.*

3. Operational definition

- **gives meaning by setting experimental procedures**
- **It prescribes the operation to be performed**
- **bring abstract Concepts to the empirical reality**

Example: A solution is “acid” if and only if litmus paper turned red when dipped into it.

4. Definition by genus and difference

- **To construct this definition**
- **identify the genus & specific difference**
- **Most effective of all intentional definitions**

Examples:

Species		Difference	Genus
- *"Ice"*	*means*	*frozen*	*water.*
- *"Father"*	*means*	*a male*	*head of the family*

Thank you!

Chapter 4
Critical thinking

Meaning of Critical Thinking

Critical thinking can be defined as (refers to) :

- *Involving or Exercising skilled judgment*
- *thinking clearly and intelligently*
- *Wide range of cognitive skills and intellectual dispositions*
  - *Identify /classify*
  - *Evaluate:*
  - *Analyze:*
  - *Understand:*
  - *Synthesize:*
  - *Criticize*
- ***Critical thinking is to think***
  - *Clearly:*
  - *Actively:*
  - *Persistent fairly:*
  - *rationally:*

- ***john Dewey:***
  - *Critical thinking is **active**, **persistent**, careful consideration of issues/belief in different **grounds***
- ***For Robert Ennis:***
  - ***Critical thinking is reasonable, and reflective thinking focusing on decide what you believe or to do (decision making)***
- ***For Richard Paul:***
  - ***critical thinking is model of thinking which focus in reflecting on thoughts***

- having ability of thinking

Critical thinking helps us to:

- *discovers & overcomes personal preconceptions or prejudice*
- *formulate & provide convincing reason and justifications to*
- *make reasonable/rational decision about what we believe /d*
- *impartially investigate data and facts not swayed by emotion*
- *arrive at well-reasoned, sound and justifiable conclusion*

❑ Standards of CT

CT is normal and acceptable if it fulfills the following standards

1. Clarity
2. Precision
3. Accuracy
4. Relevance
5. Consistency
6. Logical Correctness
7. Completeness
8. Fairness

1. Clarity

- Clear understanding of concepts
- Expression should free of vagueness and ambiguity
- CT strive both for clarity of language & thought

2. Precision

- being exact, accurate and careful
- reducing vague and obscures thoughts
- Provide precise answer to precise questions of life

3. Accuracy

- Having correct and genuine information
- CT value truth, accurate and timely information
- Every decision should be made based on true information
- If the input is false information, decision will not be sound

4. Relevance

- It's an issue of connection
- focus on Significant ideas logical to the issue at hand
- focus should be given to the issue at hand

5. Consistency

- Quality of always behaving in the same way
- following same standards in decisions making
- There are two kinds of inconsistency that we should avoid
  - Logical inconsistency
  - Practical inconsistency:

6. Logical Correctness

- To think logically it reason correctly
- To draw well-founded conclusions from belief/information
- Conclusions should logically follow believes/ideas or evidence

7. Completeness

- deep and complete thinking to shallow and superficial thinking

8. Fairness

- **Treat all relevant views alike**
- thinking should be based on
  - ✓ fair
  - ✓ open mindedness,
  - ✓ Impartiality and
- **thinking should be free**
  - ✓ distortion,
  - ✓ Biasedness
  - ✓ Preconceptions,
  - ✓ Inclinations,
  - ✓ Personal interests

Principles of Good Argument

1. The Structural Principle

- Use arguments that meet fundamental structural requirement
- valid form is the First requirement for argument to be good (deductive)
  - don't use reason that contradict to each other (avoid invalid inference)
  - conclusion should follow the premise with strict necessity

- good argument:

2. The Relevance Principle

- **One who argues in favor or against a position……?**
  - **Set forth premise whose Truth provides evidence for the truth of the conclusion**
  - **Premise is relevant if its provides logical reason to the conclusion**
  - **basic question**

    - Does the truth of the premise support the truth of the conclusion?

3. The Acceptability Principle

- Premise must provide evidence that can be accepted by a mature, rational person
- If the reason has the capability to convince a rational person to accept conclusion

4. The Sufficiency Principle

- Premise provides sufficient reason that outweigh the acceptance of the conclusion.
- Questions to test sufficiency of evidence
  - Are the available reasons enough to drive someone to conclusion?
  - are key or crucial evidence missing from the argument ?

5. the Rebuttal Principle

- Person should provide effective rebuttal (refutation) to all anticipated serious criticisms of an argument raised against it.
- **good argument effectively refute criticisms raised against it**
- Ask and answer following questions in applying the rebuttal principle to an argument.
  - What is the strongest side of arguments against the position being defended?

Principles of Critical Thinking

1. The Fallibility Principle

- Willingness of participants in an argument to acknowledge his/her fallibility
- Accept one ‘s own initial view thay may not be the most defensible position on the issue
- Consciously accept that your view may wrong - willing to change your mind

2. The Truth-Seeking Principle

- participant should be committed to search truth
- **one should be willing to**
  - Examine alternative positions seriously
  - look for insights and positions of others
  - Allow others to present arguments for or against issue
- **The search for truth is lifelong endeavor and can be attained if:**
  - We discuss and entertain the ideas and arguments of fellow
  - We listen arguments for positions and
  - Have Willingness to look at all available options
  - We encourage criticisms of our own

3. The Clarity Principle

- Formulations of all positions, defenses, and attacks should be free of any kind of linguistic confusion
- **discussion is successful** if it carried on in language that all the parties involved can understand
- expressing in confusing, vague, ambiguous, or contradictory language will not help reach the desired goal

4. The Burden of Proof Principle

- Burden of proof rests on the participant who sets forth the position or argument
- **Participant is logically obligated to produce reasons in favor of his claim**
- The arguer is Obliged to give logical answer

5. The Principle of Charity

- If the participant ‘s argument is **reformulated by an opponent**, it should be carefully expressed in its strongest possible version (**intension of the original argument**)
- Opponent has an **obligation of interpreting a speaker's statements in the most rational way**, considering its best

6. The Suspension of Judgment Principle

- suspend judgment about the issue if
  - no position is defended by good argument, or
  - two or more positions seem to be defended with equal strength
  - one has no good basis (evidence) for making a decision
- To make decision: relative benefits or harm of (consequence) should also take in to consideration

Why are issues not resolved? When

- **When One or more of the parties to the dispute:**
  - ✓ **has a blind spot:** not **objective about the issue at hand and rational but not psychologically convinced by the discussion**
  - ✓ **have been rationally careless**
  - ✓ **has a hidden agenda**
  - ✓ **not being honest with themselves**
  - **are in deep disagreement of underlying assumptions**

CHAPTER THREE
INFORMAL FALLACY

- **Argument:**
  - **argument can be good/bad, depending on the r/p b/ n the P&C**
  - **Good argument meets all the required criteria**
  - **A good argument:**
    - ***Structurally good form***
    - ***Has relevant , acceptable & sufficient premise***
    - **provide an *effective rebuttal* to all reasonable**
  - **An argument violates the above it becomes fallacious**
- **fallacy**
  - **logical defect or flaw in reasoning process in ana argument**
    - **(bad) form of the argument**
    - **(bad) defects in the contents of the statements**
  - **violation of standard argumentative rules or criteria.**
  - **Both deductive and inductive arguments may contain fallacies**
  - **People may commit fallacy intentionally or unintentionally**

- **Depending on the kind of the defects they contain:**

1. Formal fallacy:

- **due to structural defect**
- **found only in deductive argument with identifiable form**
- **Easily identifiable by their form**
- **Hence, deductive arguments with invalid form**

Example:

- ***All tigers are animals. All mammals are animals. Therefore, all tigers are mammals.***

2. Informal fallacy :

- **due to bad content**
- **found in both deductive and inductive arguments**
- **Cannot be identified through inspection of the form**
- **Identifiable through detail analysis of content**

Example:

- ***All factories are plants. All plants are things that contain chlorophyll. Therefore, all factories are things that contain chlorophyll***

- **Informal fallacies are Classified in to:**

1. **Fallacies of relevance**
   - **have logically irrelevant but psychologically relevant premise to conclusion**
2. **Fallacies of weak induction**
   - **have logically relevant premise but with no sufficient evidence**
3. **Fallacies of presumption**
   - **Premise contains an assumptions which isn't supported by evidence**
4. **Fallacies of ambiguity**
   - **Conclusion drawn from ambiguous used words and phrases**
5. **Fallacies of grammatical analogy**
   - **Structurally, looks good argument but has bad content**

Fallacy of relevance

- Premise is logically irrelevant to the conclusion
- but psychologically premise is relevant to the conclusion
- conclusion does not follow the premise logically
- Unlike in good argument(genuine evidence) in fallacy of relevance- emotional appeal
- Hence, connection between P&C is emotional
- It includes fallacies of :

1. Appeal to force- employ threat
2. Appeal to pity- evoke pity
3. Appeal to the people – manipulate desire of people
   - bandwagon ------majority's choice
   - vanity----------celebrity /public figure
   - snobbery - -------status/ privilege

4. Against the person

- **Ad hominem abusive**
- **Ad hominem circumstantial**
- **Ad hominem tu qoque**

5. Accident – misapplication of G.R to specific case

6. Straw man –distortion of original argument

7. Missing the point- C misses logical evidence of P

8. Red herring – diverting attention of L/R to ward new issue

1.Appeal to force or stick fallacy

- **arguer poses C by employing threats on L/R**
- **Always involves using threat**
  - **physical (explicit force/threat)**
  - **psychological (implicit force/threat)**
- **threat is logically irrelevant to conclusion**

Examples :

1. ***Mr. Kebde you have accused me of fraud and embezzlements. You have to drop the charge you filed against me. You have to remember that I am your ex-boss; I will torture both you and your family members if you do not drop your case. Got it?***

2. ***Child to playmate: ''Josy in the house'' is the best show on TV; and if you don't believe it, I'm going to call my big brother over here and he's going to beat you up.***

3. ***Lately there has been a lot of negative criticism of our policy on dental benefits. Let me tell you something, people. If you want to keep working here, you need to know that our policy is fair and reasonable. I won't has anybody working here who doesn't know this***

4. Secretary to boss: I deserve a raise in salary for the coming year. After all, you know how friendly I am with your wife, and I'm sure you wouldn't want her to find out what has been going on between you and that sexpot client of yours. (Psychological threat)

2. Appeal to Pity

- **support a conclusion merely by evoking pity in one ‘s audience**
- **if the arguer succeeds in evoking strong feelings of pity, the listeners may deceived to accept the conclusion with out logical evidence**

Example:

- ***The Headship position in the department of accounting should be given to Mr. Oumer Abdulla. Oumer has six hungry children to feed and his wife desperately needs an operation to save her eyesight.***

- ***Taxpayer to judge: Your Honor, I admit that I declared thirteen children as dependents on my tax return, even though I have only two. But if you find me guilty of tax evasion, my reputation will be ruined. I’ll probably lose my job, my poor wife will not be able to have the operation that she desperately needs, and my kids will starve. Surely I am not guilty.***

- **There are arguments from pity, which are reasonable and plausible which is called argument compassion**
- **Most society values helping people in time of danger and**
- **showing compassion and sympathy is a natural response in some situation.**
- **If some group of people are in danger, helping out may require appeal to the compassion**

Consider the following argument.

- ***Twenty children survive earthquakes that kill most people in the village. These children lost their parents. They are out of school, and home in the street. Unless we each of us contribute money, their life will be in danger in the coming days. We should help these children as much as we can.***

3. Appeal to the People

- **Naturally, everyone wants to be accepted, loved, and esteemed by others.**
- **However, the problem lies on how to secure this desire.**
- ***Committed when an arguer draw a conclusion by manipulating the desire of the people using different techniques***
- **Arguers illogically attempt to exploit the desire/emotion of the people for some private motives**
- **claim : if you want to be member of the group , accept xyz as true**
- **Two approaches**
  - **Direct approach**
    - **Arguer address a large group of people, excites the emotions and enthusiasm of the crowd to win acceptance for his or her conclusion.**
    - ***Objective-----arouse mob mentality***
    - **individuals in the audience want to share the excitement and find themselves accepting any number of conclusions with ever-increasing fervor**
    - **usually employed by speakers, propagandists, politicians**

Indirect approach :

- ***arguer appeal not at the crowd as a whole but at individuals separately who have relationship to the crowd***
- ***Used by industries to advertise their product***
  - ***Using emotively charged terminologies***
  - ***Capability to attract people towards the product or issue***
- **Three varieties**

i. appeal to bandwagon

ii. Appeal to vanity

iii. Appeal to snobbery

i. Appeal to Bandwagon

- **commonly appeals to the desire of individuals to be considered as part of the group or community in which they are living**
- **community or group shares some common values and norms**
- **Hence, every individual is expected to manifest group conformity to these shared values**
- **Bandwagon uses these emotions and feelings to get acceptance for a certain conclusion**

Example: ***The majority of people in Ethiopia accept the opinion that child circumcision is the right thing to do. Thus, you also should accept that child circumcision is the right thing to do.***

- **In advertising ,the issue is intentionally Attached with majority section of society– and others are urged to follow the decision of majority**

Example : ***Of course you want to buy Zest toothpaste. Why, 90 percent of America brushes with Zest***

- **Appeal to Vanity**
  - **Arguer associates the product with someone who is admired, pursued and people**
  - **Claim: if you use the product which is used by some one respected by the people ,you will be respected too.**

Example: ***BBC may show the famous footballer, Frank Lampard, wearing Adidas shoe, and says: Wear this new fashion shoe! A shoe, which is worn only by few respected celebrities! ADIDDAS SHOE!!!***

- **Appeal to snobbery**
  - **arguer associates the issue with persons who have high social status(higher class)**
  - **Claim: 'if you want to be a member of the selected few, you should accept XYZ.'**

Example: A Rolls Royce is not for everyone. If you qualify as one of the select few, this (distinguished classic may be seen and driven at British Motor Cars, Ltd. (By appointment only, please.)

4. Argument against the person

- **Normally in a good argument, to achieve collaborative goals arguers are expected to:**
  - **observe rules of polite conversation**
  - **to trust each other and express their arguments/position clearly and honestly**
  - **focus on attacking the content of the argument than personality of opponents**
- **But arguers focus on attacking personality of opponents than the content of the argument---against the person fallacy**
- **Occurred when an arguer discredits an argument by attacking the personality of his opponent**
- **always two arguers**
- **three forms of against the person:**
  - **i. Ad hominem abusive**
  - **ii. Ad hominem circumstantial**
  - **iii. Tu quoque (you too)**

i. Fallacy of ad hominem abusive

- **Committed when an arguer rejects an argument by verbally abusing the personality of his opponent rather than the contents of his opponent's argument**
- **second person rejects the first person 's argument by verbally abusing the first person**
  - ✓ ***Premise: A is a person of bad character***
  - ✓ ***Conclusion: A"s argument should not be accepted.***

Examples:

- ***In defending animal rights, Mr. Abebe argues that the government should legislate a minimum legal requirement to any individuals or groups who want to farm animals. He argues that this is the first step in avoiding unnecessary pain on animals and protecting them from abuse. But we should not accept his argument because he is a divorced drunk person who is unable to protect even his own family.***

- ***Mr. Abebe has argued for increased funding for the disabled. But nobody should listen to his argument. Mr. Abebe is a slob who cheats on his wife, beats his wife, , and kids, and never pays his bills on time.***

ii. Fallacy of ad hominem Circumstantial

- **committed when an arguer discredits the argument of his opponent by alluding the argument with certain circumstances that affect his opponents**
- **easy to recognize because it always take this form: '*Of course, Mr. X argues this way; just look at the circumstances that affect him.'***

Example:

- ***Haileselassie I of Ethiopia argued in the League of Nations that member states should give hand to Ethiopia to expel the fascist Italy from the country. But the member states should not listen to the king. Haileselassie I argue in this way because he wants to resume his power once the Italian are expelled from Ethiopia***

- ***Ato Mohammed has just argued to replace the public school system with private school system. But, of course, he argues that way. He has no kids, and he does not want to pay any more taxes for public education.***

iii. tu quoque (you too) fallacy

- **second arguer attempts to make the first appear to be hypocritical or arguing in bad fait**
- **This fallacy has the following form: *'How dare you argue that I should stop doing X; why you do (have done) X yourself?'***
- ***So,* arguer(2nd) discredits the argument of an opponent by claiming that the idea he advance as false and contrary with what he has said or done before**

Example:

- ***Patient to a Doctor:* Look Doctor, you cannot advise me to quit smoking cigarette because you yourself is a smoker.**
- ***How do you advise me to quit smoking while you yourself are smoking?***
- ***Child to parent:* Your argument that I should stop stealing candy from the corner store is no good. just a week ago You told me you, too, stole candy when you were a kid.**

❑ ***Are all arguments against the person fallacious? They are not. There are reasonable arguments against the person***

5. Accident

- **committed when a general rule is applied to a specific case it was not intended to cover**

Example:

- ***Freedom of speech is a constitutionally guaranteed right. Therefore,*** *John Q. Radical* ***should not be arrested for his speech that incited riot last week.***

- ***Property should be returned to its rightful owner. That drunken sailor who is starting a fight with his opponents at the pool table lent you his 45-caliber pistol, and now he wants it back. Therefore, you should return it to him now.***

6. Straw Man

- committed when an arguer distorts an opponent's argument for the purpose of more easily attacking it.
- main features of straw man fallacy
  - First, there are always two individuals discussing about controversial issues: One(1st arguer) of the arguers presents his views about the issues and the other(2nd arguer) is a critic
  - Second, the 2nd arguer does not rationally criticize the main argument of the opponent Rather misrepresented ideas of original argument.
  - Third the 2nd person concludes by criticizing the misrepresented idea
- When the fallacy of straw man occurs readers should keep in mind two things.
  - First, they have to try to identify the original argument, which is misrepresented by the critic.
  - Second, they should look for what gone wrong in the misrepresentation of the argument.

Example:

- ***Mr. Belay believes that ethnic federalism has just destroyed the country and thus it should be replaced by geographical federalism. But we should not accept his proposal. Geographical federalism was the kind of state structure during Derg and monarchical regime which suppress right of national nationalities and peoples of Ethiopia.***

- ***Mr. Goldberg has argued against prayer in the public schools. Obviously, Mr. Gold-berg advocates atheism. But atheism is what they used to have in Russia. Atheism leads to the suppression of all religions and the replacement of God by an omnipotent state. Is that what we want for this country? I hardly think so. Clearly Mr. Goldberg's argument is nonsense.***

7. Missing the point

- **premise of an argument supports a conclusion which is different but vaguely related to the correct one (cocnclusion)**
- **If one suspects that such fallacy is committed, he or she should identify the correct conclusion, the conclusion that the premises logically imply**

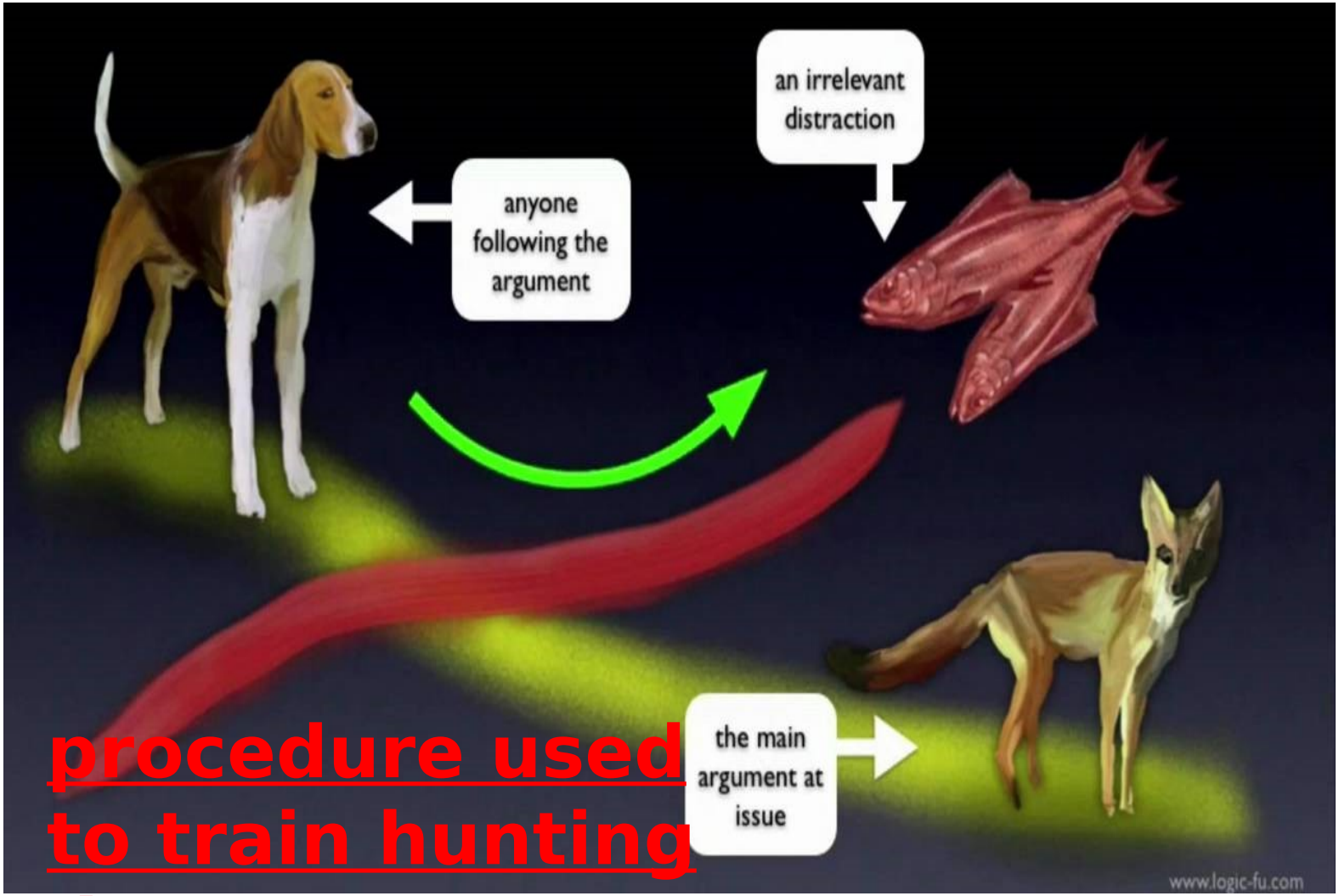
- **arguer is ignorant of the logical implications of his or her own premises and draws a conclusion that misses the point entirely**

Examples

- ***The world is in the process of globalizing more than ever. The world economy is becoming more and more interconnected. Multinational companies and supra national institutions are taking power from local companies and national governments. The livelihood of people is randomly affected by action and decision made on the other side of the planet and this process benefits only the rich nations at the expense of the poor. What should be done? The answer is obvious: poor nations should detach themselves from the process.***
- ***Crimes of theft and robbery have been increasing at an alarming rate lately. The conclusion is obvious: we must reinstate the death penalty immediately.***

8. Red Herring

- arguer **diverts the attention of the L/R** by **changing the original subject in to totally different issue**
- **arguer ignores the main topic** and **shifts the attention** of his audiences to **another totally different issue**
- Draws **conclusion from the changed issue**
- **arguer mislead L/R using two different techniques**
  - ***change the subject to one that is subtly related to the original subject***
  - ***change the subject to some flashy, eye-catching topic that distract the attention of the L/R***



procedure used to train hunting dogs

Example:

✓***Environmentalists are continually harping about the dangers of nuclear power. Unfortunately, electricity is dangerous no matter where it comes from. Every year hundreds of people are electrocuted by accident. Since most of these accidents are caused by carelessness, they could be avoided if people would just exercise greater caution.***

✓***There is a good deal of talk these days about the need to eliminate pesticides from our fruits and vegetables. But many of these foods are essential to our health. Carrots are an excellent source of vitamin A, broccoli is rich in iron, and oranges and grapefruits have lots of vitamin C.***

- **To differentiate SM,RH & MP fallacies ……..**

1. both red herring and straw man proceed by generating a new set of premises

- but Missing the point draws a conclusion from the original premises

2. In both red herring and straw man, the conclusion is relevant to the premises from which it's drawn

- But in missing the point, the conclusion is irrelevant to the premises from which it's drawn

2. Fallacies of Weak Induction

- occurred due to **weak connection** **between the P&C**
- **Premises is relevant to the C *but* *doesn't contains sufficient evidence***
- **Includes six fallacies :**
  - **Appeal to unqualified authority**
    - ✓ **C cites statement of others**
  - **Appeal to ignorance**
    - ✓ **lack of proof definitely supports a conclusion**
  - **Hasty generalization**
    - ✓ **C depends on insufficient info. and unrepresentative sample**

- **Fallacy of weak Analogy**
  - ✓ C depends on insignificant similarity two events
- **Slippery slope fallacy**
  - ✓ C depends on alleged chain reaction with less probability to happen in reality
- **False cause fallacy**
  - ✓ C depends on imagined causal connection which may not happen in reality

9. Appeal to unqualified authority

- **Arguer draws conclusion by citing the idea** of **unqualified authority whose idea is untrustworthy .**
- **A person is unqualified authority when he/she:**
  - **lacks the expertise/Profession**
  - **make biased or prejudiced judgment**
  - **Has the motive to lie or**
  - **Has the motive to disseminate “misinformation”**
  - **lacks the ability to perceive or recall things**

Example:

A. Dr. Bradshaw, our family physician, has stated that the creation of muonic atoms of deuterium and tritium hold the key to producing a sustained nuclear fusion reaction at room temperature. In view of Dr. Bradshaw's expertise as a physician, we must conclude that this is indeed true.

B. David Duke, former Grand Wizard of the Ku Klux Klan, has stated, ''Jews are not good Americans. They have no understanding of what America is.'' On the basis of Duke's authority, we must therefore conclude that the Jews in this country are un-American

C. ***Old Mrs. Ferguson (who is practically blind) has testified that she saw the defendant stab the victim with a bayonet while she was standing in the twilight shadows 100 yards from the incident. Therefore, members of the jury, you must find the defendant guilty***

D. James W. Johnston, Chairman of R. J. Reynolds Tobacco Company, testified before Congress that tobacco is not an addictive substance and that smoking cigarettes does not produce any addiction. Therefore, we should believe him and conclude that smoking does not in fact lead to any addiction.

10. Appeal to Ignorance

- committed when ***one's ignorance, lack of evidence and Lack of knowledge definitely supports the conclusion***
- ***premises state that nothing has been proved about something*** **but the** ***conclusion makes a definite assertion*** **about that thing.**
- **committed when Someone argues that:**
  - ***Something(X) is true because no one has proved it to be false*** *or*
  - ***Something(X) is false because no one has proved it to be true***
  - ***Group of people have been conducted research for decades to check the existence of 'X' but all failed to do so. Therefore 'X' doesn't exist.***

Examples:

***a.Nobody** has ever proved the existence of UFO. Therefore, UFO doesn't exist.*

***b.People** have been trying for centuries to **disprove** the claims of astrology, and **no one has ever succeeded**. Therefore, we must conclude that the claim of astrology is **true**.*

Exceptions

1. *If group of experts/scientist investigate something in their own area of expertise and found nothing*

example *:*

- ***Teams of scientists** attempted over a number of decades to detect the existence of the UFO and **all failed to do so**. Therefore, UFO does not exist.*

2. Legal [court room] procedure

example *:*

- ***Members of the jury, you have heard the prosecution present its case against the defendant. Nothing, however, has been proved beyond a reasonable doubt. Therefore, under the law, the defendant is not guilty***.

3. There are also cases where mere see and reporting are enough or sufficient to prove something which needs no expertise

example *:*

- ***No one has ever seen Mr. Andrews drink a glass of wine, beer, or any other alcoholic beverage. Probably Mr. Andrews is a nondrinker.***

11. Hasty Generalization

- **arguer draws conclusion based on insufficient information and unrepresentative sample or**
- **occurs when there is a reasonable likelihood that the sample is not representative of the group**
- ***Sample non representative when***
  - ***sample is too small or***
  - ***sample [large but] not selected randomly***
- ***Committed by individuals who develop a negative attitude or prejudice towards others***

Example:

- ***Six Arab fundamentalists were convicted of bombing the World Trade Center in New York City. The message is clear: Arabs are nothing but a pack of religious fanatics prone to violence.***

12. False Cause fallacy

- **conclusion depends on some imagined causal connection of events which may not exist in reality**
- **Depends on ‘X’ causes ‘Y’ while ‘X’ may not probably cause ‘Y’ to happen at all**
- **three varieties of false cause fallacy**
  - **Post hoc ergo propter hoc**
  - **Non Causa pro Causa**
  - **Oversimplified Cause**

- **Post hoc ergo propter hoc fallacy**
  - **Means After this, on account of this**
  - **Depends on temporal succession of events**
  - **‘Y’ is caused by ‘X’, because ‘X’ exist before ‘y’**

Example

- ***During the past two months, every time that the cheerleaders have worn blue ribbons in their hair, the basketball team has been defeated. Therefore, to prevent defeats in the future, the cheerleaders should get rid of those blue ribbons.***
  - **occurs in cultural superstition -associate with bad luck**

Example

- ***‘‘A black cat crossed my path and later I tripped and sprained my ankle. It must be that black cats really are bad luck.’’***

- **Non Causa pro Causa Fallacy**
  - **Means 'Not the cause for the cause'**
  - **Occurred when conclusion depends on either**
    - **coincidental occurrence of events or**
    - **Mistake cause for an effect**

Examples

- ***There are more churches in Ethiopia today than ever before and more HIV victims ever before; so, to eliminate the epidemic we must abolish the church.***
- ***Successful business executives are paid salaries in excess of $50,000. Therefore, the best way to ensure that Ferguson will become a successful executive is to raise his salary to at least $50,000.***

Oversimplified Cause Fallacy

- **Multitude of causes are responsible for a certain effect but the arguer selects just one of these causes and represents it as the sole cause**

Example

- ***The quality of education in our grade schools and high schools has been declining for years. Clearly, our teachers just aren't doing their job these days.***

13. Slippery Slope fallacy

- a variety of false cause fallacies
- event ‘X’ is the cause of event ‘Y’….. but it takes place in a series of events or actions
- conclusion of an argument rests upon an alleged chain reaction but not sufficient to think that the chain reaction will actually happen
- The first event is taken as cause fall all the event to happen in a series

Example:

B Immediate steps should be taken to outlaw pornography once and for all. The continued manufacture and sale of pornographic material will almost certainly lead to an increase in sex-related crimes such as rape and incest. This in turn will gradually erode the moral fabric of society and result in an increase in crimes of all sorts. Eventually a complete disintegration of law and order will occur, leading in the end to the total collapse of civilization.

14. Fallacy of Weak Analogy

- ***arguer draws conclusion depending on insignificant similarities of two or more things***
- **The similarity between two things is not strong enough to support the conclusion**
- **The basic structure of the fallacy**
  - **Entity A has attributes a, b, c and z**
  - **Entity B has attributes a, b, c**
  - **Therefore, entity B probably has attribute z.**

Example:

2. Harper's new car is bright blue, has leather upholstery, and gets excellent gas mile age. Crowley's new car is also bright blue and has leather upholstery. Therefore, it probably gets excellent gas mileage, too.

- ***But If some causal or systematic relation exists between z and a, b, or c, the argument is strong- commits no fallacy***

Examples

- ***The flow of electricity through a wire is similar to the flow of water through a pipe. Obviously, a large-diameter pipe will carry a greater flow of water than a pipe of small diameter. Therefore, a large-diameter wire should carry a greater flow of electricity than a small-diameter wire.***

- ***The flow of electricity through a wire is similar to the flow of water through a pipe. When water runs downhill through a pipe, the pressure at the bottom of the hill is greater than it is at the top. Thus, when electricity flows downhill through a wire, the voltage should be greater at the bottom of the hill than at the top.***

3.3 Fallacies of Presumption

- **To presume means to take something for granted or**
- **to assume a given idea as true (while in fact not true)**
- **The assumption given in the premise is not supported by proof but arguer invite the audiences to accept as it is.**
- ***Arguer uses confusing expressions-to conceal the wrong assumption***
- **Contains fallacies of:**
  - **Begging the question**
  - **Complex question**
  - **False dichotomy**
  - **Suppressed evidence**

15. Begging the Question

- **Arguer uses confusing phraseology**
- **Presumes that the premises provide adequate support for the conclusion**
- **Arguer creates the illusion by stating the inadequate evidence as adequate to the conclusion by**
  - ✓ ***Leaving out a key premise-*** *nothing more is needed to establish the conclusion*
  - ✓ ***Restating the premise as a conclusion*** **-** *using different words*
  - ✓ ***Reasoning in a circle-*** *not clear where it begins &ends*
- **Chxs:**
  - **Has a valid form**
  - **Contains phraseology that conceal faulty reasoning**
- **The actual source of support for the conclusion is not apparent**

- **Leaving out a key premise**

  Example: Murder is morally wrong. This being the case, it follows that abortion is morally wrong

- **Restating the Premise as a Conclusion**

  Example: Capital punishment is justified for the crimes of murder and kidnapping because it is quite legitimate and appropriate that someone be put to death for having committed such hateful and inhuman acts.

- ***Reasoning in a circle.***

16. Complex Question

- **Arguer asks a single question (that is really two or more) and a single answer is then applied to both question**
- **Oblige the L/R to acknowledge about something that he or she doesn't want to acknowledge**

Example:

- Have you stopped cheating on exams?

- **You were asked whether you have stopped cheating on exams. You answered ‘‘yes.’’ Therefore, it follows that you have cheated in the past.**

17. False Dichotomy

- **Premise of an argument presents two alternatives as if they are jointly exhaustive**
- **the arguer attempt to delude the reader or listener into thinking that there is no third alternative**

Examples:

- **Either you buy only Ethiopian-made products or you don't deserve to be called a loyal Ethiopian.**

Yesterday you bought new Chinese jeans.

Therefore, you don't deserve to be called a loyal Ethiopian

18. Suppressed Evidence

- **arguer draws conclusion by ignoring the key premise that outweighs the conclusion**
- **it works by creating the presumption that the premises are both true and complete when in fact they are not**
- **Common in advertisements/ads/**

Example:

- ***The new RCA Digital Satellite System delivers sharp TV reception from an 18-inch dish antenna, and it costs only $199. Therefore, if we buy it, we can enjoy all the channels for a relatively small one-time investment***

3.4 Fallacies of Ambiguity

- **conclusion of an argument depends on either**
  - **a shift in meaning of an ambiguous word or**
  - **wrong interpretation of an ambiguous statement**

19. Equivocation

- **conclusion depends on meaning of word which is used in two different senses**

Examples:

- **Some triangles are obtuse. Whatever is obtuse is ignorant.**
  Therefore, some triangles are ignorant.
- **Any law can be repealed by the legislative authority. But the**
  law of gravity is a law. Therefore, the law of gravity can be
  repealed by the legislative authority.

20. Amphiboly

- **arguer draw a conclusion depending on misinterpreted statement**
- **The original statement- asserted by someone**
- **ambiguity usually arises from :**
  - **a mistake in grammar , punctuation—a missing comma, a dangling modifier**
  - **an ambiguous antecedent of a pronoun etc.**
- **So the statement may be understood in two clearly distinguishable ways.**

examples:

- **John told Henry that he had made a mistake. It follows that**
  John has at least the courage to admit his own mistakes.

- **Difference between Amphiboly & equivocation**
  - **Equivocation – due to ambiguity in meaning of words but**
  - **Amphiboly – due to ambiguity in a statement**

  - **Equivocation –involves a mistake made by the arguer when he constructs an argument**
  - **Amphiboly – involves mistake made by the arguer in interpreting an ambiguous statement made by someone else**

3.5 Fallacies of Grammatical Analogy

- **are grammatically similar to other arguments that are good in every respect**
- **It include fallacies of**
  - **composition**
  - **division**

21. Composition

- **conclusion depends on the erroneous transference of attribute from parts to whole**

Examples:

- ***Each atom in this piece of chalk is invisible. Therefore, the chalk is invisible.***
- ***Sodium and chlorine, the atomic components of salt, are both deadly poisons. Therefore, salt is a deadly poison.***

- **But if the transference of attribute from part – whole is legitimate – commits no fallacy**

Example:

- ***Every atom in this piece of chalk has mass. Therefore, the piece of chalk has mass.***

22. Division

- **conclusion depends on the erroneous transference of attribute from whole to part**
- **An illegitimate transference of attribute from whole to part**

Examples:

- ***Salt is a nonpoisonous compound. Therefore, its component elements, sodium and chlorine are nonpoisonous.***

- **But when the transference of attribute from the whole to part is legitimate , it doesn't commit fallacy**

Example:

- **This piece of chalk has a mass. Therefore, the atoms of this piece of chalk has mass as well**

- **To distinguish composition & Hasty generalization , Examine the conclusion of the argument**
  - **If the conclusion of an argument is a general statement- hasty generalization**
  - **If the conclusion of an argument is class statement-composition**
- **To distinguish division & accident, examine the premise of the argument.**
  - **If the premises contain a general statement- Accident**
  - **if the premise contain a class statement- Division**

Thank You!