

Chapter Three

Logic and Language

3.1 Introduction

One of the greatest challenges facing any philosophical system is the construction of a language that can reliably analyze reality according to logical criteria. If philosophy is to teach us any truth, it must speak in a language that we can understand, or it will remain a meaningless string of symbols. The practical need to express logical arguments in human language, however, exposes us to the danger of conflating/mixing grammatical and logical relationships. Even individual terms may distort our analysis, since many of our words were coined from casual intuition, without concern for logical or philosophical rigor. If we are to use language for logical argument, we cannot accept it as is, but must bring it into conformity with clearly intelligible logical principles. This endeavor faces two potential modes of failure: (1) it might be impossible to bring human language fully into conformity with known logical principles, and (2) there might be fundamental aspects of logical analysis to which existing human language is blind. These linguistic problems, if intractable, could foil any attempt to construct a philosophical system that yields positive knowledge. Taking the linguistic problems of philosophy seriously, we must avoid those common yet false solutions. First, we cannot reduce logic to mere formalism, such as the symbolic logic of mathematics, because in order for a formalism to be intelligible, we must be able to translate its symbols into the concepts of human language. Second, we must not lapse into the fallacy of origins and try to reduce the question to pseudo-evolutionary speculation about the origin of human language. The entire point of constructing a logical language is that we are not slaves of the languages we have inherited, but can conform them to our thought and ascribe new meanings to old symbols. The history of the last two thousand years of philosophy amply demonstrates how Greek and Latin vocabulary and grammar were modified to convey ideas more precisely. Nonetheless, we must respect the possibility that there might be limits to how much we can modify language to mirror logical analysis. If the ancient Greek philosophers did not neatly distinguish between grammatical and logical analysis, it is because they believed they were constructing a genuinely logical language. Non- dialectical language was relegated to the domain of rhetoricians and grammarians, but logic could be seen as a linguistic domain pertaining to philosophical analysis. Thus, it is unsurprising that the Greeks should find linguistic objects to be the locus of truth and falsehood. They did not regard dialectical language as a barrier to reality, but rather as the very image of reality. As naïve as this may seem, it would be self-stultifying to tend to the other extreme and deny that language can be linked to objective reality. For one thing, it is circular reasoning to use language to generate the

knowledge that language cannot generate knowledge. Secondly, ordinary men have in fact been able to teach each other many verifiable truths through colloquial common speech, so we should expect at least as good results from a more rigorously developed logical language, however imperfect it may be. Above all, we should not suppose that the fundamentals of logic, such as the principle of contradiction, are merely accidental products of human grammar. Regardless of the anthropological origins of our grammar, those who live now may freely invent new rationales for linguistic usages, including the rationale of developing logical systems. With an understanding of the breadth of languages from the Americas to east Asia, we are much less linguistically naïve and can clearly distinguish, for example, a belief in substance and accidents from a grammatical construction of subject and predicate. Still, it would be foolhardy to suppose that we can think in “pure ideas” without language, so we must use language, yet at the same time subject it to the test of logical principles, to guarantee its coherence and to resolve ambiguities of meaning.

In the classical Western tradition, the starting point for study of the intersection of language and logic has been Aristotle’s *Peri Hermeneias* or *De Interpretatione*. As mentioned, the ancient Greeks did not neatly distinguish grammar from logic, but rather we might say the latter was a special case of the former, as applicable to dialectical argument. We will rectify this confusion in our own discussion, and construct a clearer account of the basic principles of classical logic. At the same time, we will also attempt to develop a better understanding of the relationship of language to logical analysis, and show how language is often informed by our philosophical intuitions, rather than the other way around. The use of Greek and Latin in classical philosophy is less a cultural accident to be lamented than a fortuitous development, for these languages more clearly and precisely express true philosophical intuitions, and lend themselves more readily to the construction of a logical language. We will also address the question of whether modern philosophy draws too sharp a distinction between logic and grammar, so that we might regard logic as a genuinely linguistic phenomenon after all, which is not necessarily a liability.

3.2 **Logic and Meaning**

Logic is a method of reasoning that involves a series of statement.

Meaning: A highly ambiguous term, with at least four pivotal senses, involving

1. intention or purpose,
2. designation or reference,
3. definition or translation,

4. Causal antecedents or consequences.

Each of these provides overlapping families of cases generated by some or all of the following types of systematic ambiguity: -

1. Arising from a contrast between the standpoints of speaker and interpreter.
2. Arising from contrast between the meaning of specific utterances (tokens) and that of the general (type) symbol.
3. Arising from attention to one rather than another use of language (e.g., to the expressive rather than the evocative or referential uses).

Some of these ambiguities are normally eliminated by attention to the context in which the term 'meaning' occurs. Adequate definition, would, accordingly, involve a detailed analysis of the types of context which are most common. The following is a preliminary outline.

1. "What does X {some event, not necessarily linguistic} mean?" =
 - "Of what is X an index?"
 - "Of what is X a sign?"
2. "What does S (a speaker) mean by X (an utterance)?" =
 - "What are S's interests, intentions, and purposes in uttering X?"
 - "To whom (what) is he referring?"
 - "What effect does he wish to produce in the hearer?"
 - "What other utterance could he have used to express the same interest, make the same reference, or produce the same effect?"
3. "What does X (an utterance of a speaker) mean to an interpreter?" =
 - "What does I take S to have meant by X (in any of the senses listed under B)?"
4. "What does X (a type symbol) mean in language L?"
 - "What symbols (in L) can be substituted for X (in specified contexts) without appreciable loss of expressive, evocative or referential function?"
 - In a translation from L into another language M, either of X or of a more

complex symbol containing X as part, what portion of the end-product corresponds to X?"

In addition to the above, relatively nontechnical senses, many writers use the word in divergent special ways based upon and implying favored theories about meaning.

1. An expression (sentence) has cognitive (or theoretical, assertive) meaning, if it asserts something and hence is either true or false. In this case, it is called a cognitive sentence or (cognitive, genuine) statement; it has usually the form of a declarative sentence. If an expression (a sentence) has cognitive meaning, its truth-value depends in general upon both
 - the (cognitive, semantically) meaning of the terms occurring, and
 - Some facts referred to by the sentence.
2. If it does depend on (a) and (b), the sentence has factual (synthetic, material) meaning and is called a factual (synthetic, material) sentence.
3. If, however, the truth-value depends upon (a) alone, the sentence has a (merely) logical meaning. In this case, if it is true, it is called logically true or analytic; if it is false, it is called logically false or contradictory.
4. An expression has an expressive meaning (or function) in so far as it expresses something of the state of the speaker; this kind of meaning may for instance contain pictorial, emotive, and volitional components (e.g. lyrical poetry, exclamations, commands). An expression may or may not have, in addition to its expressive meaning, a cognitive meaning; if not, it is said to have a merely expressive meaning.
5. If an expression has a merely expressive meaning but is mistaken as being a cognitive statement, it is sometimes called a pseudo-statement.

3.2.1 Cognitive and emotive meaning of words

Cognitive (Informative use of Language)

We use language cognitively (Informatively)

- ✓ To refer to the content (reality, essence) of something
- ✓ To convey information
- ✓ To communicate meaning of concepts (terms)

Ex: - Ayele is a driver.

- A lady sitting beside me wore a traditional dress.
- Ethiopia is a prestigious airline of its own.

In these statements language is serving to communicate something about a referent, something claimed to be true about world. Since cognitively asserted notions convey information about things around us that could be judged as true or false, it can serve as a reason that arrives at a certain claim. Hence, cognitively stated statements are useful in constructing arguments in the form of the premise and conclusion of an argument.

Emotive (Expressive use of Language)

It is a function of language used to express our emotions (feelings and sensations) attitudes, values, prejudices, etc. or to evoke other's emotions. It is useful mainly to influence the conduct and activity of others and to reflect their negative or positive feeling (favoring or disfavoring) towards something.

Note that, emotive language do not:

- ✓ Refer to the content of an object
- ✓ Communicate information about a referent
- ✓ Directly concerned with asserting that something is actually that something is actually true or false.

Ex: - He is a distinguished lecturer.

- Its shameful act, you should stop it.
- Our government is crooked.

As you understand from these examples, emotive function of language used to express our prejudices, liking or disliking of something and enables us to hold subjective position. Hence, emotive use of language distracts us to hold beliefs, positions, and views or stand points on rational grounds and to justify our claims. Moreover, since emotive (expressive) sentences cannot be evaluated as true or false, they are unable to be directly used as premise or conclusion in constructing arguments. Therefore, emotive functions of language are not important in logical discourses.

Although, it is very difficult to achieve emotively neutral language in every instance, it is worth to eliminate emotive words and sentence in our arguments. If not, our argument would in tend to persuade our audiences without reasonable ground. If it does, it is a fallacy. Hence, we see that emotive words and sentences are the source of fallacies to be committed in arguments.

3.2.2 Intensional and extensional meaning of Terms

Intensional (Connotative) Meaning of Terms

Intensional meaning is the meaning of term derived from the set of features those things are presumed to have in a common. It is a collection of characteristics common to all or specific properties that makes an object or group of objects unique or different from others.

Example: - The connotation of the term "man" is "a rational being". Hence the term "man" is applicable to all "rational beings", which is a characteristic common to all human

beings.

Accordingly the sum of the essential features of an object or class of homogeneous objects would have intensional meaning and be represented (symbolized) by intensional terms.

Extensional (Denotative/Referential) meaning of Terms

The term “extension” refers to the class or set of things made up of individual objects (elements) that could be symbolized and meaningfully understood by a term that could be applicable to all of them. Extensional meaning, therefore, does not essentially refer to property of things unique or common to them, rather a meaning achieved through referring to members of the class of things to which the term is applied. To know extensional meaning is to know how to identify or denote its referent. Note that the members of things that the term denotes and its class are tangible, currently existing or concrete realities.

As you see from the example, all things included in the extension of the term “man”, have some common characteristics (qualities). This case indicates that intensional meaning has superiority to determine extensional meaning- there is no extensional meaning without intensional meaning. In short, when we define a term according to its **intension**, we define it according to its characteristics. Cat is a furry, four legged, meowing creature. When we define a term according to its **extension**, we define it according to the class or collection of things to which the term refers. “Cat” is a feline animal.

3.3 Logic and Definition

Any attempt to make arguments good requires clearer use of words and phrases. To fulfill this requirement the meaning of terms should be correctly defined. Language, to serve as a principal tool for human communication, words should not be used mistakenly and carelessly. Similarly, wrong use of words in arguments creates unsound, uncogent and fallacious arguments. To make arguments good and acceptable correct use of words is indispensable. Therefore, definition of terms is both linguistic and logical operation.

What is Definition?

The term definition is derived from the Latin, *definire*, which means to limit or be concerned with boundaries. Based on this etymological background, definition is an attempt to provide meaning for a term or for a phrase concerned with or limited to the essential characteristics of the term or phrase being defined. Hence, when we define the term;

- ✓ We are creating boundaries of the use of that term
- ✓ We are distinguishing that term from other terms, and
- ✓ We are focusing on what makes that term what it is.

A part from our etymological understanding, the term “definition” can be defined as the explicit accounts of the meaning of terms or phrases in distinct contexts and employed in the service of different goals.

Definition of a term: (in Scholasticism)

Nominal: Is discourse (language, speech, oratio) by which the meaning of a term is explained.

Positive: That which reveals (show) the essence of a thing in positive terms, **e.g.**, man is a rational animal.

Negative: That which states the nature of a thing in negative terms, **e.g.** God is not mortal, not corporeal, etc. Cf. La Logique de Port-Royal, Pt. I, ch. XII.

3.3.1 Types and purpose of Definition

Types of Definitions

Definitions are classified into various types by various logicians. At times, some of these types differ from each other so much that they appear to be contradictory to each other. Let us see some of these types classified by these logicians. One classification is:

1. **Nominal Definition** is definition which speaks about a term but not declaring anything about it. This is done by considering the origin of the term, by describing the term, by giving the synonym of the term or by citing an example that will represent the term

a. Nominal Definition by Etymology

– attained by tracing the origin of the term.

Ex.: Fraternity came from “frater”, which means “brother”.

b. Nominal Definition by Description

– attained by describing the term.

Ex.: A rose is a flower.

c. Nominal Definition by Synonym

– It is done by giving a word equivalent to the term.

Ex.: Being kind is being benevolent.

d. Nominal Definition by Example

– It is done by citing anything that will represent the term.

Ex.: Our Chief Executive is Dr. Ahmed Yusuf.

2. **Real Definition** declares something about the term. This kind of definition serves to explain about the nature and to distinguish it from other terms.

Classification of Real Definition

a. Real Definition by Genus and Specific Difference

- A definition that explains the essence of a term by considering the intelligible elements that makes up the term.

Ex.: A triangle is a figure with three sides.

“Figure” – genus, “three sides” – specific difference

b. Real Definition by Description

- It is done by stating the genus of the term but altering (changing) the specific difference by giving the logical property, which belongs to the term to be defined.

Ex.: A Police Officer is a man bestowed with authority to enforce a law.

“Man” – genus, “bestowed with authority to enforce a law” – logical property

c. Real Definition by Cause

-It is attained by stating the genus of the term but altering the specific difference by tracing its cause. A cause could be its purpose, function, reason for existence, make-up or origin.

Ex.: A book is a written material made-up of several pages and is a source of information.

“Written material”– genus, “source of information”– cause or reason for existence

Second classification of definitions is as follows:

DENOTATIVE DEFINITIONS try to explain the meaning of a word by mentioning at least several objects it denotes. Although we might not view these strictly as definitions, they are, nevertheless, frequently called "denotative definitions."

Among denotative definitions, two different kinds are worth mentioning,

1. Ostensive definition,
2. Definition by partial enumeration

Among denotative definitions, ostensive definitions stand out as especially common and useful.

1. **Ostensive definitions** are definitions by pointing to one or more example to which the term can be applied.

When a young child wants to know the meaning of the word "dog" we are apt/becoming to point to a dog and call out the word "dog." This is an example of an ostensive definition.

2. A second type of denotative definition worth mentioning is a **definition by partial enumeration**.

Definitions by partial enumeration are simply lists of objects, or types of objects, to which the word refers. The list, "beagle," "cocker spaniel," "dachshund," "greyhound," "poodle," provides an example of a definition of dog is by partial enumeration. While denotative definitions might not really seem much like definitions, they do ultimately attempt to convey the meaning of a word, at least indirectly.

For the hope is that by citing the objects the word refers to, the people we are talking with will come to see what that word means. However, let's turn now to definitions in the more ordinary sense of the term.

CONNOTATIVE DEFINITIONS: is a word suggestive of an associative or secondary meaning in addition to the primary meaning. It is one which denotes a subject, and implies an attribute. The collective name is then "connotative" of the common characters of the collection.

They are usually formulated in the following three ways:

1. X is Y. Example: A bachelor is an unmarried man.
2. The word "X" means Y. Example: The word "Bachelor" means unmarried man.
3. X =DF. Y. As an example: Bachelor =DF. Unmarried man.

In all these cases the term on the left "bachelor" in the above examples is the one being

defined, and we call it the "definiendum" (a term to be defined). While we refer to the terms used to define this word "unmarried man" in our example, collectively as the "definiens" (that which does the defining).

Among connotative definitions, perhaps five different kinds are worth mentioning,

- (1) Persuasive definitions,
- (2) Theoretical definitions,
- (3) Précising definitions,
- (4) stipulative definitions, and
- (5) Lexical definitions.

Let us see these definition types in details:

- 1. Persuasive Definitions:** The purpose of a persuasive definition is to convince us to believe that something is the case and to get us to act accordingly. Frequently definitions of words like "freedom," "democracy," and "communism," are of this type.

Ex: - taxation is the means by which bureaucrats rip off the people who have elected them.

- "Federalism" is a political intrigue that provides legitimate ground for the emergence of new regional warlords.

This definition of the term federalism is provided by a person, who has a negative feeling towards the federal system. While these sorts of definitions might be emotionally useful, we should avoid them when we are attempting to be logical. The purposes of persuasive definition are:

- ✓ To persuade or convince listeners or readers over a certain issues,
- ✓ To change or influence the attitude of others, towards one's own point of view,
- ✓ To win the acceptance of audiences, and
- ✓ To make audiences to develop favourable or unfavourable attitudes towards the term being defined.

2. Theoretical Definitions: Theoretical definitions explain by a theory. Whether they are correct or not will depend, largely, on whether the theory they are an integral part of is correct. Whenever stipulative or précising definitions are given for the purpose setting a theory based on a term being defined within the context of a broader intellectual framework is called theoretical definition.

Ex: - Newton's famous formula " $F = ma$ " (i.e. Force = mass x acceleration)

- Einstein theory of "Relativity", and so on. , provides a good example of such a definition.

3. Précising Definitions: Definition which providing a more precise, specific and restricting meaning to a conventional term Précising definitions attempt to reduce the vagueness of a term by sharpening its boundaries. **For example**, we might decide to reduce the vagueness in the term "bachelor" by defining a bachelor as an unmarried man who is at least 21 years old.

We often encounter précising definitions in the **law** and in the **sciences**. Such definitions do alter the meaning of the word they define to some extent. This is acceptable, however, if the revised meaning they provide is not radically different from the original. Sometimes by providing précising definitions we can reduce the potential for verbal disputes that are based on a term's vagueness. When A and B begin argue about whether a bicycle is a vehicle we try to get them to recognize that term "vehicle" contains vagueness. Once they have seen this, we can make them agree to reduce it by providing a précising definition.

4. **Stipulative Definitions:** it provides meaning to a completely new term by creating a usage that had never previously existed. Stipulative definitions are frequently provided when we need to refer to a complex idea, but there simply is no word for that idea. A word is selected and assigned a meaning without any pretense that this is what that word really means. While we cannot criticize stipulative definitions for being incorrect, and so, the objection, "But that isn't what the word means" is inappropriate); we can criticize them as unnecessary, or too vague to be useful.

The purpose of a stipulative definition is to introduce unusual or unfamiliar words, which have no previous meaning in the language. Individual or group of individuals choose or invent new words and define either intensional or extensional methods for the sake of such things as scientific invention, military secrete, codes and operations, new social and natural phenomena, etc.

5. **Lexical Definitions:** Unlike stipulative definitions, lexical definitions assign a meaning to the old / to the already used term in a language or do attempt to capture the real meaning of a word and so can be either correct or incorrect. When we tell someone that "intractable" means not easily governed, or obstinate, this is the kind of definition we are providing. Roughly, lexical definitions are the kinds of definitions found in dictionaries. Hence, Lexical definition, sometimes called **dictionary definition**. Lexical definition can be accurate or inaccurate. If it is accurate, the definition is true, if not it is false. Accurate lexical definition is

helpful to avoid ambiguity of a term being defined when its meaning confused with another term. A term is ambiguous when it has two or more meaning in a given context. For example, unless we use the lexical definition, the following terms results ambiguity.

Ex: - Defuse. This term can mean either remove the fuse from a bomb or reduce tension in crisis,

- **Humanity.** This term refers either the human race, or benevolence.

All these are correct lexical definitions of the terms “defuse” and “humanity.” However, unless we use the meaning of these terms in their proper contexts ambiguity is committed. When ambiguity of meaning of terms occurs in our argument, fallacy of equivocation is committed.

Fallacies of definition

When a definition is not appropriate, it commits a fallacy. Fallacies of definition are the various ways in which definitions can fail to explain terms. The phrase is used to suggest an analogy with an informal fallacy. "Definitions that fail to have merit because they are overly broad, use obscure or ambiguous language, or contain circular reasoning are called fallacies of definition."

The major fallacies are; overly broad or Too Wide, overly narrow or Too Narrow, mutually exclusive definitions, Synonyms definitions, Obscure definitions, Self-contradictory definitions & circular definitions.

Fallacies in definitions are listed as follows:

1. **Too Wide definition** is the definition that applies to things or members to which that word actually does not apply.
2. **Too Narrow definition** is the definition that excludes many things to which the word being defined actually applies. **E.g.** an apple is something which is red and round.
3. **Mutually exclusive definitions** are the definitions where we find some qualities that do not belong to the word defined. The definiens of mutually exclusive definitions list characteristics which are the opposite of those found in the definiendum. **E.g.** a cow is defined as a flying animal with no legs.
4. **Synonyms definitions** are the definitions where one word is defined by another without explaining any of them clearly.
5. **Obscure definitions** are definitions using inappropriate language or the language that feels odd, but does not explain anything about the word in question. **E.g.** someone said

that, his answer were obscure and confusing.

6. **Self-contradictory definition** occurs when the definendum used two contradictory qualities together in explaining the definiens. **E.g.** An atheist wearing a cross.

7. **Ambiguous definition** is the definition where a word has many meanings & we are using an inappropriate meaning while defining it in some situation. **E.g.** she is partly responsible for their fighting. /she is partially responsible to their fighting. However, partially may imply favoritism because it is related to 'partial'.

8. **Figurative definition** is the way to define something using decorative language. Such a language may or may not explain the word appropriately. **E.g.** his friend is as black as coal.

9. **Circular definitions** If one concept is defined by another, and the other is defined by the first, this is known as a circular definition where neither definiens nor definendum offers enlightenment about what one wanted to know. Given that a natural language such as English contains, at any given time, a finite number of words, any comprehensive list of definitions must either be circular or rely upon primitive notions. A question naturally arises when we start defining things. This is, if every term of every definiens must be defined, by itself, where at last should we stop? **E.g.** would be to define "Jew" as a person believing in Judaism", and "Judaism" as "the religion of the Jewish people", which would make "Judaism" "the religion of the people believing in Judaism.

Purposes of Definitions

We use the method of definition in order to know things better. Yet, whenever we define, we always define anything with a purpose. In order to understand a definition, we must first know why we define. Let us understand the purposes of a definition. We define anything in order to;

1. Increase Vocabulary.
2. Explain anything clearly.
3. Reduce Ambiguity of word.
4. Eliminate ambiguity of any word.
5. Explain a word theoretically.
6. To Influence attitudes.

Let us see these purposes in details:

1. Increase Vocabulary.

When we are learning any new language, we need to define new words in order to know more words in the language and increase our vocabulary.

2. Explain anything clearly.

When we use any language, some words are not clear enough. At times just listening a word is not enough to understand it. So we need to define them.

3. Reduce vagueness of word.

Sometimes the meaning of a word depends on the context and without clarity about context, the word appears vague. Definition is necessary at such times.

4. Eliminate ambiguity of any word.

Some words have many meanings and at times are used ambiguously and one does not understand which meaning to use. At such times, definition is of help.

5. Explain a word theoretically.

We have a number of technical terms and words that cannot be understood without definition. It is a correct and clear definition that can help us understand these words and symbols and phrases correctly.

6. To Influence attitudes.

Definition also plays a very important role in the society where people gain by influencing the attitudes of others. At times for social good or for personal good, people define some words or terms in order to influence attitudes.

Rules of Definition: definition has the power to explain something effectively only and only when the definition is perfect and complete and faultless. Such a perfect complete faultless definition is called a good definition. Whenever we want to define anything, we always want to give such perfect definitions, but we seldom know the basic rules of a good definition. A good definition must follow certain rules in order to be effective. These rules state that, a definition must set out the essential attributes of the thing defined. A Definition should avoid circularity. This means, a definition must not repeat same things in different ways without any meaning where we find that we cannot define "antecedent" without using the "consequent", nor conversely.

The definition must not be too wide or too narrow. It must be applicable to everything to which it applies. It must not miss anything out. Also, it must not include any things to which the defined term would not truly apply. The definition must not be obscure.

Definition is used to remove obscurity, so using obscure words in definition is meaningless. A definition should not be negative where it can be positive.

These Rules of Definition can be listed as follows:

1. The definition must be clearer than the term that is being defined. The purpose of the definition is to explain and must, therefore be easy to understand. It must not contain terms which will only make it less intelligible.
2. The definition must not contain the term being defined. The definition must use other terms in defining. It is supposed to explain a particular term and is not supposed to use the same term in the explanation.
3. The definition must be convertible with the term being defined. The purpose of this rule is to make sure that the definition is equal in extension with the term being defined. The definition must not be too narrow or too broad. If the term and the definition are equal in extension, then, they are convertible.
4. The definition must not be negative but positive whenever possible. The definition is supposed to explain what a term or object is, and what it is not. Only when a term is negative should the definition

3.3.2 Techniques of Definition

Definitions play important roles in arguments. To see why, let's consider the abortion debate. Both sides agree that killing an innocent person is morally wrong. So, what's the ruckus about? Often, those who are anti-abortion define human life and personhood as beginning at conception while those in the other camp say human life and personhood begin at some later stage of development. So, it seems that the abortion debate isn't so much about the moral significance killing an innocent person; rather it is about what the definition of "person" is. For our purposes, the key idea is to notice the important role a definition can play in argument. Last time we looked at some ways in which definitions can be a weakness in an argument. Now we're going to start to look at the flip- side: What are some different ways to use and construct definitions in our own arguments? And of course, how can we do this well?

3.3.2.1 Extensional Techniques of Definition

Extensional Definition

The three methods of extensional definition (demonstrative, enumerative and definition by subclass) are important methods of to construct lexical and stipulative definition,

and sometimes theoretical and persuasive definition, but not précising definition. Also known as Denotative Definition, it is a way of defining a word based on giving examples of the things or objects referred to by a term.

For **example**, defining a computer for someone who never saw a computer before would be utterly lacking. It is important, therefore, to show him or her computer. Showing a computer to describe a term “computer” is an extensional definition.

Three Types of Extensional Definition

1. **Definition by Example** – a definition in which we list or give examples of the objects denoted by the term.
2. **Ostensive** – an extensional definition which merely points out an object referred by a term.
3. **Quasi-ostensive** – an extensional definition which does not only point the object referred to by the term but also gives a description about the object being pointed out.

Extensional or denotative definitions are important especially when a term requires a demonstration in order to be understood. For example, one cannot define “color red” without pointing to something that is of color red. There are, however, serious limitations of extensional or denotative definitions. One limitation is that a person who uses this kind of definition is that he may not be able to articulate what the thing really is because he knows only what the thing is like. Articulation of meaning is important because it clarifies ambiguity in understanding, and more importantly, it indicates the depth of understanding a person has of a particular term. Another reason is that extensional definitions cannot define terms that have no extension. For instance, how can we extensionally define terms like “length”, “infinite”, “nothingness”, “value”, etc.?

3.3.2.2 Intensional Techniques of Definition

Intensional Definition

Also known as connotative definition or definition by comprehension, it is a way of defining a word by giving its meaning. Giving the meaning of the term may be done through giving its etymological origin or its synonym, or stating the essential attributes of the concept signified by the term.

Four Types of Intensional Definition

1. **Etymological Definition** - Defines a word by giving the meaning of the word or words from which it is derived. It can serve as a method of constructing lexical definition.

E.g. Philosophy is derived from philos, a Greek word which means “loving,” and Sophia, which means “wisdom”.

2. Definition by Synonym - Defines a word by giving a synonym (either of the same language as the word to be defined or of a different language) that is better known than the word to be defined. It can serve as a method of constructing lexical definition.

E.g. anthropos means man, to confect means to put together

3. Operational Definition – is helpful for stipulative, theoretical, lexical, not always précising and persuasive definition. It is a type of intensional definition widely used in science. It defines a word or an occurrence by stating the necessary conditions that are required in order for something to be called such a term. It has a form “Something is X, if and only if...”

For instance, X is magnetic, if and only if, whenever any piece of iron, nickel or cobalt is placed closed to it, it attracts the latter toward itself.

Another example: X is harder than Y, if and only if, when a point of X is drawn on the surface of Y, X scratches Y.

4. Definition by Genus and Difference or Real Definition –is the most effective method for constructing all five types of definition. It is also regarded as the best type of definition because it tells us what a thing really is. It is defining a term by giving a larger class to which the concept signified by the term belongs (called as genus) and stating the properties that a concept has that differentiates it from other concepts under the same genus (called as difference).

E.g.1 - Man is a rational animal. (“Animal” is the genus because it is the larger class to which the concept “man” belongs. “Rational” is the difference because it is what differs man from all other animals.)

E.g.2 - Girl is a young woman. (Genus = woman; Difference = young)

3.4 Criteria for Lexical Definition

Lexical definition

to report the way a word is actually used in a language, lexical definitions are the ones we most frequently encounter and are what most people mean when they speak of the 'definition' of a word

Rule 1: A Lexical Definition should conform to the Standards of Proper Grammar a definition like any other form of expression, should be grammatically correct

Ex: vacation is when you don't have to go to work or school furious means if you're angry at someone cardiac is like something to do with the heart corrected: "vacation" means a period during which activity is suspended from work or school "furious" means a condition being very angry "cardiac" means pertaining to, situated near, or acting on the heart

Rule 2: A Lexical Definition Should Convey the Essential Meaning of the word being defined human.

Rule 3: A Lexical definition should be neither Too Broad nor Too Narrow if too broad, the definiens includes too much, if it is too narrow, too little,

Ex: bird: warm-blooded animal having wings, the definition would be too broad only types of lexical definition that tend to be susceptible to either of these deficiencies are synonymous definition's that the definien really is a synonym

Ex: king means ruler too broad, rule is not genuinely synonymous with king

Rule 4: a lexical definition should avoid circularity a definition is circular when the definiendum is defined in terms of itself or virtually in terms of itself; sometimes the problem of circularity appears in connection with pairs of definitions.

Ex: science means the activity engaged in by scientists

Scientist means anyone who engages in science

Rule 5: a lexical definition should not be negative when it can be affirmative concord means harmony concord means the absence of discord bald means lacking hair darkness means the absence of light

Rule 6: a lexical definition should avoid figurative, obscure, vague, or ambiguous language no metaphors or tends to paint a pic instead of exposing the essential meaning of a term. architecture means frozen music camel means a ship of the desert is vague when it lacks precision or blurred democracy means a kind of gov't where the people are in control but this fails to identify the people who are in control, how they exercise their control, and what they are in control of ambiguous when it lends itself to more than one distinct interpretation

Rule 7: a lexical definition should avoid affective terminology affective term is any kind of word usage that plays on emotions of the reader or listener, sarcastic and facetious language. and any other kind of language that could influence attitudes communism

means that brilliant invention karl marx and other foolish political visionaries in which the national wealthy is supposed to be held in common by the people theism means belief that great santa claus in the sky: also breaks metaphor rule

Rule 8: a lexical definition should indicate the context to which the definiens pertains applies to any definition in which the context of the definiens is important to the meaning of the definiendum deuce means a tie in point toward a game or in games toward a set is practically meaningless without any reference to tennis.