

## Critical Thinking and Practical Reason

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The material that is included here is for classroom use and the distance education programme by the University of Ghana only.

Also contained in Units 8, 10 and 12 are examples compiled by work previously contributed by Charles L. Gesheker, Emeritus Professor of History in the State University of California who served for a decade as a member of South Africa's Presidential Advisory Panel on AIDS, and a co-member with one of the authors of this text, of the Board of the Scientific Group for Rethinking AIDS. Prof. Gesheker consents to the use of this material in the classroom and for distance education and for any educational purpose by the University of Ghana. This material appeared initially in Chapters 2-4 in Vol. I of *History and Philosophy of Science for African Undergraduates* (2003) Ibadan: Hope Publications and in the forthcoming *Reclaiming the Human Sciences and Humanities through African Perspective* (2010) from Sub Saharan Press,

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### **General Overview**

Dear Student,

Welcome to the world of Critical Thinking and Practical Reasoning!

We who created this workbook and courser reader for you have designed it in such a way that you can master all the material required to do well in this course just by relying on all the readings, exercises, activities, practice drills, and discussion questions provided here. We suggest textbooks where this sort of topic is treated at the end of the book, but all you really need to do is to study each unit very well, and to ask questions with your tutor or the lecture of the course.

There are three types of activities through the Units

1. Short answer items
  2. Thinking exercises and drills
  3. Research exercises
- Discussion options

Suggested answers are provided at the end of the module for the short answer items only. Thinking exercises, research drills, and discussion options may be assigned by your lecturer in your continuous assessment.

Any questions or counterparts of the same style may appear on examinations.

Anything which is unclear in the book would be a good place to start asking questions that you should bring to lecture or to tutorial or to your lecturer during office hours.

Not all written material is clear; you can help the teacher asking honest questions. Critical thinking begins with asking honest questions.

By the end of this course, you will have accomplished our main objectives if you are able to:

1. See when there is a need for making language clearer;
2. Use specific techniques to make the use of language clearer;
3. Appreciate various approaches to gaining knowledge of different types in different subject areas;
4. See the difference between distinct types of argument and reasoning that logicians have categorised;
5. Identify types of problems that you meet in everyday life;
6. Apply the respective types of solution to these problems recognised by cognitive psychologists.

Each unit in this workbook is designed to cover a particular topic that is treated in this course over thirteen weeks of lectures. If you are attending lectures then everything in the workbook will be covered in the two hour lecture or in the one hour tutorial held each week.

If it is not covered in one or both places then you should read the material and raise questions yourself about it. Some of the topics are very straightforward and you can learn them by yourself, provided you ask what you need to be sure you understand the exercises and activities.

If you are a distance education student then you will have covered all the material dealt with in the course if you read everything thoroughly and ask your tutor online specific questions, referring to specific page numbers from the text or the exercises or both. Ask everything you want to know. Especially ask if something written in the explanations is not clear to you. That shows you are working hard and that you are thinking and reading critically.

## OVERVIEW OF THIS READER

In a way, there is nothing new here in this book except terminology or special labels for the sorts of things you do in your head automatically without realising it. Every person who speaks a language is already using logic. What sometimes makes it tricky to study these rules is that you follow them automatically, and it may take some extra concentration to learn the labels and categories used to talk about what you do as a speaker of a language.

Another reason why this course material may seem awkward at first is because we are using language to study language. We are thinking about our thoughts and other people's thoughts that are expressed in language, but the only way to think about our thoughts is by creating more thoughts! In geology, for example, the subject matter, is the rocks and formations on the earth's surface and underground; and the technical instruments and tools required to examine this subject matter are totally distinct: you observe your subject matter through microscopes and survey equipment, draw maps and propose theories about how these physical formations and crystalline structures came to be as you observe them. When we reflect upon our own thoughts, there is no way to separate the tools used to observe and describe what we see from the objects under investigation. This means that at the end of the day you may find that the vocabulary used and the categories drawn are often grossly inadequate for the job we are doing. But in this inquiry, realising the limitation in the categories we've drawn will count as progress!

## OVERVIEW OF THE UNITS

In Part I of this course, UNITS 1-3, you will learn to look at your thoughts and other people's thoughts as they are expressed in language. The basic unit of most thinking is a sentence. Different types of sentence represent different kinds of thought or different actions accomplished using language, called 'speech acts'.

Language gets used for different purposes. There are certain techniques we can apply to classify what people are doing and thinking when they talk or write. We will discuss how to interpret what someone is doing when they use sentences in various ways. Then we can decide if for a given purpose or use, the language that has been used or the thoughts being expressed need to be made clearer.

We can look at different ways of demanding and fulfilling the need for logical clarity—that means demanding a clearer use of language to express our thoughts. While we practice doing this we will gradually, over the weeks, come slowly to understand what is meant by "logical clarity."

In part ii, units 4 and 5, you will discover what sorts of logical tools are required in different subject areas of knowledge, also called modes of inquiry. Everyone on the campus or in their homes is studying subjects or disciplines that contrast with each other—the methods used in the arts and humanities are not the same as those taught in natural sciences or social studies. You will come to see how different patterns of logical relation between thoughts constitute the differences between the subject areas taught in distinct faculties.



By sketching what we call the Map of Knowledge, you will get some insight as to why theology and mathematics (normative sciences) are approached differently from psychology and sociology (empirical sciences), and why the study of ethics has more in common with mathematics than it does with sociology. This contrast between normative and empirical studies illustrates the differences between reasoning called deductive and reasoning called inductive.

In part three, units 6-10, we will look more directly at the fundamental differences between deductive and inductive reasoning, but we will always keep it very practical. You will learn basic patterns of logical reasoning only insofar as you need to apply them as tools to identify elementary flaws in the thinking that may lead us to hold on to a particular belief or point of view for the wrong reasons.

In part four, units 11-12, you will be introduced to strategies for everyday problem solving; these will help you to maintain your own personal and professional discretion in the face of peer pressure and mob mentality, when confronting the challenges and moral dilemmas we all face in our everyday lives both within the university and beyond.

## **A FINAL WORD BEFORE STARTING**

Throughout, this course is practical. You need to be spending time practicing the skills and doing the homework exercises on your own. The theory is very simple but if you don't practice you could fail the exam even though you understood everything while listening to the lecture. But be careful: Driving a car is not difficult conceptually; people learn and then they do it sometimes while falling asleep, it's so easy when you learn how.

BUT "watching somebody drive a car while you sit in the passenger seat is not sufficient to ensure you can drive it yourself. *WORK HARD*. Don't just come to lectures or read through the module.

Never be afraid or hesitant to challenge anything that you read here—or anywhere. It is quite likely that if you are not satisfied by a given explanation, or if a contrast is being drawn that seems to you as not very reliable or accurate or adequate, then there is a good chance that your concerns are well founded on philosophical grounds or on experiences you have had of which others are ignorant. In any case it is always correct to take seriously your own concerns with incoming information and to raise these objections and challenges that are worrying you. That is what critical thinking is all about.

In a more advanced course in philosophy or in another subject area in your future studies, either in a formal course or on your own, you will be free and encouraged to explore these concerns and see whether they are well founded or not. But the time to start asking questions and raising objections and posing problems is now. That tendency to raise questions and point out the need for elaboration or further explanation is the mark of a true scholar and intellectual, and that is what your role should be in civic society wherever you work and in whatever you do, to contribute to a strong and vibrant nation.

## **Unit one: Thoughts as Objects Scrutiny**

### **Introduction**

Logic is a useful tool, but not always. It can be abused to deprive people of their entitlements; it can be used as a verbal stick of oppression to bully and silence people.

And it's not in every situation where logic is useful; there are many uses of language to which rules of logic do not apply. For instance people use language to create an effect: to impress an audience, the Master of Ceremonies might speak of a newly wedded couple in beautiful verse, to intentionally exaggerate their virtues; to be overly concerned about the truth of what he is saying misses the point of why he is talking in the first place. Or someone might be engaged in playing a fictitious character in a play, or reciting poetic verse or telling a vivid story, or giving someone consolation, or spiritual inspiration, or just to express strong feelings. In all these situations, applying logical analysis would at best give the impression that you are trying to make a joke or to express disdain for the proceedings or the speaker. Or it might seem that you are grossly at fault for missing the intentions of the speaker or of the text.

So our first job in learning to use logical tools is to recognize those statements to which they apply. This requires recognizing different forms of linguistic expression.

### ***This unit will cover the following topics***

Section 1 Distinguishing types of sentence-shaped thought

Section 2 Recognising sentence (thought) fragments and expressions of feeling

Section 3 Identifying different types of declarative statement

Objectives for treating thought as an object of study

Upon completion of this unit you should be able to

1. Contrast
  - (i) directives or imperatives,
  - (ii) questions or interrogatives, (iii) declarative statements.
2. Observe sentence fragments and emotive expressions—components of thought that are incomplete sentences
3. Identify different types of declarative statement: (i) factual judgments,
  - (ii) value judgments (moral and non-moral),
  - (iii) definitions;

4. that is, recognise when there is a call to establish:
  - (i) the accuracy of a factual judgment, (ii) the credibility of a value judgment, (iii) the quality of a definition.

## SECTION 1 DISTINGUISHING TYPES OF SENTENCE-SHAPED THOUGHT

### Introduction

In this section we will learn to examine and classify sentences into different types of action using language: a sentence might serve to ask a question in order to gain information, or to issue a directive or request to get something done, or to make a statement or declaration to convey information.

### Objectives

Distinguish these categories of speech act

- interrogatives (questions to gain information)
- imperatives (directives, commands, requests to do)
- declaratives (fact statement, value judgment, definition of a word)

**Interrogatives** are questions and they are spoken to get information. A question in itself cannot be true or false; a question may be successful or not, depending upon whether or not it attracts a correct answer.

Imperatives are also called directives or commands, and they are requests to get someone to do something. Just like a question, a command or directive will be successful if the result is that the desired effect is brought about. Sometimes a command can be made in a polite way, as if it were a question demanding information. So we have to be aware that a sentence may have an explicit interpretation and an implicit meaning at the same time.

If I want to be polite and you are busy but I need you to tell me the time, I might say “Please, do you know what time it is?” We would call this question a coven command or imperative, since I am not actually asking for information: I really am asking you to do something (to tell me what time it is)

Similarly in certain circumstances if I say, “can you open the window?” What I say has the form of a question, but I am not actually asking the question to find out what you *can* do; it’s rather that I intend to get you to actually do it. So it would be correct to categorize this question as a directive or a request

(an imperative). Of course it could succeed or fail—you may refuse to open the window, or it might be stuck shut—but we would not say what you have asked is true or false.

**Declarative** sentences also called propositions or statements convey information of different kinds; so there are three different sorts of declaratives that we will learn to distinguish. These are: statements of fact, value judgment, and definitions. We study these alone in Section 3.

### ACTIVITY 1.1

Contrasting factual statements with imperatives

Rephrase sentences (1-4) so that you turn the following declaratives into imperatives:

1. Kofi closed the door.
2. Kwame is going to town.. :
3. Afua wants to take this book back to the library.
4. Joshua needs money.

### ACTIVITY 1.2

Contrasting factual statements with interrogatives

Rephrase the same sentences (now 5-8) so that each is a genuine question (make an attempt with words to get information).

5. Kofi closed the door.
6. Kwame is going to town.
7. Afua wants to take this book back to the library.
8. Joshua needs money.

### ACTIVITY 1.3

Contrasting factual statements with imperatives

Identify for each of the numbered items (9-15) which of the following interpretation applies:

- a. a request for someone to do something (a polite or indirect command)
- b. a request for information (a direct question)
- c. a statement expressing information. What label should you use for each? Is it possible for a question to be overtly a request for information and covertly a request to get something done? Could any of these questions serve possibly two functions?

Sometimes you will find a statement expressing information but also implicitly giving a directive. We say this statement has an implicit meaning and an explicit meaning. We will discuss this further in future sections.

9. Sir, we are the only ones here. Are you going to close the library at 5 p.m.?
10. Is today the deadline for submission of these documents for signature?
11. Can you tell me the way to get a reimbursal for this purchase?
12. Is there any time other than 2-4 tomorrow when I can book an appointment to see the Hall Master?
13. Is this teller window open for cash withdrawals?
14. I am looking for a place to buy coins.
15. This matter is going to be tabled for discussion at the next meeting.

## SUMMARY

In section 1 we distinguished three types of sentence-length acts of communication:

- A speech act to get information is called an interrogative (question)
- A speech act to get someone to do something is called an imperative (directive or request or command)
- A speech act to convey information is called a declarative.

## SECTION 2: RECOGNISING SENTENCE FRAGMENTS AND EXPRESSIONS OF FEELING

### Sentence fragments

Some expressions do not express complete statements, so they cannot have logical relations with other expressions. A sentence fragment is a sentence with a missing part: either the subject or the verb (predicate) is absent. This may convey information, but much the way a signboard conveys information, or in an abbreviated way.

Examples:

1. Rice and stew
2. 31st December Women's Movement
3. Taking the lead
4. Unless tomorrow
5. Education of the girl child

Although sentence fragments can be very communicative, the information conveyed depends very much upon the circumstances—for instance:

If you see a sign “Rice and Stew” it won't be informative except as it might be situated where food is being served.

Or suppose I say. “Oh, as for the current president. . .” If you are looking at my face, then from my expression you can tell whether I am expressing an approving value judgment or a disapproving one. But it won't necessarily be clear in what respect I approve of the president, except with reference to the rest of the discussion. A sentence fragment therefore depends too much on circumstance and prior supplementary knowledge of the listener, or the relationship between speaker and listener, to be evaluated for its logical properties as a reliable vehicle of truth. So a sentence fragment is generally not regarded as a reliable object for analysis as a vehicle of truth.

### Activity 2.1

Constructing declarative statements

For each of these expressions, add words to write a complete declarative.

1. Rice **and** stew
2. 31st December Women's Movement
3. Taking the lead
4. Unless tomorrow
5. Education of the girl child

Constructing questions and commands

### Activity 2.2

Now take each of the same expressions (itemized for this activity as (6-10)) and create an *imperative* or an *interrogative*. Indicate which type of speech act you have constructed for each case.

6. Rice and stew
7. 31st December Women's Movement
8. Taking the lead
9. Unless tomorrow
10. Education of the girl child

### **Emotive expressions**

Another way of conveying information without expressing a complete sentence is called an *emotive expression*. This is a use of language which does not have any logical characteristics: from such expressions any other thought may follow and any thought might precede such an expression. They are what we call 'subjective' and have no basis for evaluation except they are either genuine and authentic, or they are disingenuous and insincere. The information is conveyed in the way we do by shouting, smiling, crying, hugging, waving ones arms and singing, and so on.

Examples:

11. Hallelujah
12. Hey! Who do you think you are?
13. Oh, how?! Are you crazy?
14. That Michael; he is the best man in the whole world! I just love to watch him.
15. Can you believe that? I can't stand the way she's dressed. It's disgusting.

It is important to realise when someone's speech activity does not lend itself to any rational evaluation. An emotive expression simply reveals the feelings or reactions of the speaker.

There is no reason to reject or to attempt to refute the way a person feels if all they do is express their feeling. They may be inappropriate or illegitimate or misguided in their reaction or feeling, but it would require a further speech act to find out why the person has the emotion they are expressing. Just the expression or feeling or subjective opinion in itself is not in itself susceptible to critical evaluation.

The point here is that when someone engages in this kind of speech activity, there is no point in arguing or in agreeing with him or her. These expressions are insignificant from a logical point of view.

Activity 2.3—Thinking exercise

Create your own examples of emotive expression.

Summary

In section 2 we distinguished two types of speech act that cannot be subjected to logical analysis or critical evaluation:

Sentence fragments—function like signboards or placards

- Sentence fragments—function like signboards or placards
- Emotive expressions—function like making faces, hugging, poking, kicking, shouting, fighting (with words)

These contrast with:

- Propositions (declarative statements)
- Interrogatives (questions)
- Imperatives (directives, requests, commands)

#### Activity 2.4

Distinguishing types of speech act

A. From the following list of speech acts, pick out which of them are declarative (propositions). Which are sentence fragments (incomplete sentences, idiomatic expressions or phrases)? Which are emotive utterances? Which are interrogatives? Which are imperatives?

Remember: a given sentence in English can function in more than one capacity. Sometimes the meaning of the sentence is implicit in the context of its use, e.g. a polite interrogative may be couched as a question.

B. Choose three of the fragments above and add or delete something to make them full propositions.

C. Choose three of the propositions above and reword them to make each one an interrogative.

D. For each emotive utterance, change it so that it expresses a proposition.

1. Report for class early (before 9:30) on the day of the class test.
2. Will you please close the window?
3. Is the tractor running at this time of night?
4. If only he can get transport
5. Excuse me; *do* you know what time it is?
6. Students must register for each course they want to take with the department.



7. Where is Kwesi?
8. Kwesi is in the dining hall where he normally studies.
9. President Flight Lieutenant J.J. Rawlings and the charming FirstLady.
10. Let there be light.
11. Let us pray.
12. The best football player of all time.
13. Running for JCR president.
14. Everyone adores Weah of *Liberia*;
15. Weah for President!!! .
16. The most popular girl in Volta Hall.
17. Education of the girl-child.
18. There are 500 people enrolled in UGRC 150 this semester.
19. Red red and beans.
20. He is so tribalistic! I hate that!
21. What a gorgeous and talented man.
22. What are you doing for supper tonight after the Inter-Hall football match?
- 23 You must never tell lies.
- 24 Oh what should I do? It's terrible I have no money for the child's medicine.
- 25). Students must register for every course if they want to receive credit.
26. Do you know where the Balme Library is, please?
27. We're about to close; unless tomorrow.
28. Ghana was the first African team to qualify for the next level in the World Cup in 2009.

SECTION THREE: IDENTIFYING DIFFERENT TYPES OF DECLARATIVE  
STATEMENT

## Introduction

Three different types of sentence can be easily identified as being either true or false. In English Grammar these are declarative sentences. In logic we call these 'statements' or 'propositions.' Each type of statement will give its own sort of information, and so we will determine how to find out if the statement is true or false depending upon the kind of information it is trying to give us.

**Definitions:** A declarative sentence is said to be a definition or true by definition, either because it states the correct meaning of a word or because it follows logically from another statement which is a definition (or because it contradicts some definition).

**Example:** A square is a four-sided geometric figure in a plane whose sides are equal in length, so that its height is the same as its width.

The next unit 2 is all about definitions,

**Factual judgments: (factual statements):** A declarative sentence is called a factual if its being true or false depends upon whether or not it accurately describes the way the world is. A factual statement is not necessarily true; it is supposed to be true, but may fail to be, and then the factual statement would be false. E.g. 'Lagos is the capital of Nigeria.'

The contrast between definitions and factual judgments sometimes can be very tricky to see, since our use of words and their correct meanings depends upon what we know to be true about the world (our knowledge of the facts).

Often when a sentence is giving the meaning of a word it is very obvious. For example:

A 'sibling' is a biological brother or sister.

But very often the only way to determine the difference between a definition and fact is by referring to the context of the sentence that is the way it is being used. For example:

Water is H<sub>2</sub>O.

### Activity 3.1

Contrasting definitions with factual statements

**Directions:** Determine which of the following items are factual statements, which are definitions, and which are neither factual statements nor definitions.

1. My sister's name is Ann.
2. If Ama's only sister were to marry her husband's father, then Ama's brother-in-law would also be her father-in-law.
3. Ama has four sisters.

4. A sister is a female sibling.
5. I just love Ama's youngest sister Caroline! It makes me happy just to see her! I wish I could marry her one day.
6. There are no sisters in my father's family.
7. Africa must unite!

Value judgments: A declarative sentence is called a value judgment if it conveys the way something should be or how someone in the world ought to behave, or the way things *or* people should not be, rather than describing the way people and things in the world are actually found to be. Sometimes it is very obvious when a statement is expressing a view about how people ought or ought not to be.

#### Moral and non-moral value judgments I

There are two types of value judgement: moral value judgment and non-moral value judgments, it is easy to see the difference by use of some examples:

- 1) He shouldn't plant the corn too early.
- 2) He shouldn't shout at his wife.
- 3) That knife has a really good edge.
- 4) That woman has a really good conscience.

Sentences (1) and (3) are called non-moral value judgments; whereas (2) and (4) are moral value judgments.

#### **Metaphors as an expression of value judgment**

Sometimes we express our values of approval or disapproval or other assessment of a thing or a person using a metaphor. A metaphor is a statement that shows how two things which are unlike in most respects have some striking similarity. Usually a metaphor is not intended to be a declarative factual statement. The meaning of a metaphor will be missed if it is interpreted literally. It must be interpreted by thinking of the sorts of qualities or characteristics that the suggested analogy or image brings to mind. We will encounter metaphors in more detail in Unit 3 Section 2.

#### Activity 3.2

##### Distinguishing factual statements from value judgments

Sometimes it is obvious when we are looking at a factual statement, or instead a sentence that expresses a value judgment. Some statements convey both types of judgment: a statement that is implicitly judgmental and expresses a value, also is explicitly stating a fact.

Can you tell which of these are obviously value judgments, which are simply factual statements, and which could be both?

1. Those boys are setting fire to that cat.
2. It is wrong for those boys to set fire to that cat.
3. Most Ghanaians do not approve of abortion.
4. Abortion is evil.
5. Idi Amin was over 6 feet tall.
6. Idi Amin treated his people with no regard for their basic human rights.
7. But in other cases a statement might express both a value judgment and a factual judgment. We can then say the statement has an explicit and an implicit meaning. This will be discussed in a later section.
8. Robert Mugabe is a present day Idi Amin.
9. The British press do not treat the President of Zimbabwe with the due respect they show presidents of G8 countries.
10. The BBC commentator for the World Cup 2010 persistently asked fans in a South African drinking spot, with apparent incredulity, whether and why they were proud that Robert Mugabe was coming to visit the games.
11. Where there is smoke there is always fire.

#### Unit summary

In this unit we have distinguished factual statements about the way the world is, from value judgments that depict how the world should be or something that is wrong about the way the world is; and we contrasted both of these declaratives from definitions which focus on the meaning of a word or concept as their subject.

We observed that these contrasts are not always easy to make. This is because; sentences can fulfill more than one purpose on a single occasion of its use.

- a statement can express both a fact and a definition at the same time.
- a statement can express a fact (explicitly) and also a value judgment (implicitly) at the same time.
- a statement can express a value judgment and an imperative at the same time.

## Unit one Revision Activity 1

### Classifying types of declarative statement

In the following list of speech acts, distinguish:

- (i) which ones are definitions (or which can you decide are true or false just by looking, since you know the definitions of the words in the sentence);
- (ii) which are factual statements,
- (iii) which are value judgments (moral or non-moral); (iv) which items are not declarative statements at all?

(That is, which are sentence fragments or emotive expressions)?

1. The World Cup 2010 is the first global football tournament played on the African continent.
2. The World Cup 2010 is like a shower of gold from God gracing Africa's future.
3. A whale is the largest mammalian creature that lives predominantly in water.
4. Most plants require chlorophyll to produce energy from the sun.
5. The substance in this beaker is contaminated with DDT.
6. Education for all.
7. Environmental protection Of Ghana's wetlands is critical for the future of the nation's economy.
8. Oil drilling off the coast of Ghana may impact the eco-systems associated with Ghana's coastal wetlands in the region surrounding Ada.
- 9 When you reach the junction you must turn left to get toOkponglo; look for the signboard after that and you will reach the hotel: but you must hurry; the organiser is waiting for you.
- 10.The most toxic pesticide use in recent years in this part of the country is DDT.
- 11 You must never tell lies.
12. DDT is a white chlorinated hydrocarbon used as insecticide (abbreviation for dichlorodiphenyltrichloroethane ).
- 13 -Water' is a colorless, transparent, tasteless, odorlesscompound of oxygen and hydrogen in liquid state convertible by heat into steam and by coldinto ice: any liquid consisting chiefly of this in seas, streams, lakes, rain, tears, sweat, saliva, urine, serum.
14. Every mammal needs Water to live.

15. A 'mammal' is a class of animal having a milk-secreting organ in the female for nourishment of the young, and usually quadruped with hair or fur.
16. Lord have mercy; Christ have mercy.
17. The 31st December Women's Movement was begun under the PNDC regime, and continues to this day to be a politically active organ during campaigns of the NDC.
18. Praise ye the Lord; the Lord's name be praised. Know ye the Lord, He is God.
19. Running for president.
20. Unless tomorrow.
21. You must always treat others as you would have them treat you.
22. Don't you just love these exercises? I'm having so much fun!!

#### Unit 1 revision activity 2

#### ***Past questions***

Consider the following alternatives and classify them as

- Definition or a statement that is 'true by definition'
- Value judgment (distinguish moral from non-moral)
- Factual judgment
- Sentence fragment
- Emotive expression
- Imperative
- Interrogative

- A. It is terrible to see Reggae music commercialized for profit by corporations.
- B. No Reggae musician ever cuts his hair.
- C. We need more rain; otherwise the grass will be very dry.
- D. Whenever the grass is very dry we cannot weave mats.

- E. There has been no rain for three months.
- F. Grass mats or grass baskets.
- G. It is going to rain unless it is not going to rain.
- H. Education of the Sahelgirl child.
- I. Emancipate yourself from mental slavery; only you can free your mind.
- J. Most of the hens in our yard are sick and will stop laying eggs next month.
- K. A hen is a mature female chicken.
- L. A rooster is a male chicken.
- M. The hen may know before the cock when dawn will come, but it is the cock who crows.
- N. No hens are roosters.
- O. These hens have not laid any eggs in the last month.
- P. Abiemo likes Bob Marley's music so he must like Reggae music.
- Q. All Reggae music was banned in Jamaica until the 1980s.
- R. Neither a borrower nor a lender be.
- S. Reggae is a West Indian style of music with a strongly accented subsidiary beat.
- T. Reggae ROCKS!
- U. If you want to go to Madina for less than one cedi, then wait here for a tro-tro to come.

## **UNIT 2: DEFINITIONS**

### **Introduction**

The meanings of most words as we ordinarily use them are easy to grasp from the context of the sentences and situations in which the words are used.

But in public debates, in political discussions, in policy making, situations, in theological disputes, in theoretical articles and speculative discussions, in protest speeches and letters, petitions, and campaigns of all kinds, in cross-cultural descriptions and economic development planning, in phone-in talk shows and in general addresses, speakers often assume too much from their listeners about the meaning of particular key words they use. The result is that sometimes you can't

completely understand what a person is saying, or the person is actually not saying anything important at all, even though they seem very insistent that you take them very seriously. Or people may wind up in an endless argument simply because they are attaching different meanings to the words they are using. Sometimes a very flawed proposal will be passed because the consequences or implications of the policy have been described in a misleading way, due to the unacceptable degree of vagueness or carelessness tolerated in the use of key words.

In all these situations the first step in critical thinking requires realising when there is a need to demand for clarification of the meaning of key words.

This unit discusses when it is appropriate to seek a definition, by demanding of others and ourselves clarification of specific words. It is important to know how to make this demand effectively. So we will review the different types of definition for this purpose. Depending on the purpose or situation in which more information is required about a word's meaning, one type of definition rather than another will be appropriate.

This unit will cover the following topics:

- Section 1      Six types of definition
- Section 2      'Well-defined' words
- Section 3      'Open-textured' words
- Section 4      Problems arising with definitions

### Objectives

Upon completion of this unit you should be able *to*

1. Recognise six different types of definition and understand how they relate to each other;
2. Apply the method of searching for a 'real' or 'essential' definition to explore key concepts more deeply;
3. Appreciate what it means for a word to be well-defined;
4. Understand what it means to say a word is open-textured;
5. Diagnose when a definition is too narrow, too wide, vague, circular, question-begging.

### A PREFATORY NOTE ABOUT WORD MEANINGS: THE CONNOTATION AND THE DENOTATION OF A WORD

A definition presents the meaning of a word. But what is the 'meaning' of a word? Just for our purposes in this course of assessing the quality of a definition, it will help if we distinguish two aspects of a word's meaning: the word's connotation and the word's denotation.

The connotation is the characteristics or features or properties of something which are associated with the word that refers to that sort of thing. For example, consider the word 'chair'. The standard connotation of the word chair is: a type of furniture that is produced for one person to sit upon with a back support.



Given this connotation, the denotation of 'chair' is collection of all the things in the world that have ever existed and which exist now and which will exist in future which are correctly picked out by this word 'chair'. You can sit on a member of the denotation of the word 'chair'. You cannot sit on its connotation, instead you can describe its connotation; you can look it up in a dictionary; you can decide how to make it more precise or more general. It is the connotation of a word's meaning that typically is spelled out as its definition.

Most words have more than one connotation, and each connotation is usually associated with a distinct denotation. For instance the word 'chair' has other connotations: a chair can be the leader of a unit or department or agency in an institution; it can also be the person presiding as the authority who directs or controls what happens during a meeting. Another connotation for 'chair' is the activities of directing proceedings of a meeting or leading a group, i.e. to chair a meeting. The denotation of the word 'chair' will vary accordingly.

We use this contrast and the relation between these two aspects of the meaning of a word in order to assess the quality of a definition, as you will see in Section 5.

## SECTION 1: TYPES OF DEFINITION OBJECTIVES

To recognise six different types or categories of definition

- to see how the categories are used
- to see how the categories are related to each other
- to recognise problems arising with each category of definition

### Introduction

A standard definition is a statement which has two parts: the subject of the statement is the word being defined (called the definiendum), and the rest of the sentence (called the definiens) which gives the word's connotation.

There are several different sources from which definitions derive, and the different types reflect this variety of sources of and methods for creating definitions. Six different types of definition are introduced here, depending upon how the definition is created or where it comes from.

The purpose or situation requiring the clarification of a word's meaning will determine which type of definition is appropriate to supply.

These six types of definition are not mutually exclusive categories. One definition can belong to more than one category, because the sources of definitions for words shade into each other and depend upon each other, as you will see from the explanations and examples that follow. We talk about the different types to help you find the sort of information needed in different situations to make a word's meaning clearer.

#### 1. LEXICAL (DICTIONARY) DEFINITION:

A dictionary is the most obvious and familiar place to look for a definition. A dictionary that is restricted to a particular branch of knowledge; hence a lexical definition is the most common and simplistic source of information about the meaning of a word.

The dictionary definition describes the connotation(s) of a word. For example: the word ‘water’ has this connotation, quoted from a dictionary: “a colourless, odourless, tasteless fluid that is the chief constituent of streams, lakes, springs, rain, tears, sweat, urine, semen, saliva due to appetite, and amniotic fluid.”

Most words have more than one connotation—so we find different connotations for one word. These will be numbered in a list in the dictionary. You might find four or five definitions of ‘chair’ in the dictionary.

This is very common, and usually it does not create any problem. Most of the time you can tell from the way a word is used in a sentence, which of its different meanings is intended for that sentence. When this is not possible, more information is required in order to correct what is called the ambiguity of the word on that particular occasion of its use.

But often the dictionary definition presented for a word is vague for a particular purpose; or it might also be too narrow because it is reflecting the common usage of the word only by people who live in the society where the dictionary was produced.

In fact dictionary definitions are often flawed or inadequate. This is because dictionary definitions are simply huge collations of the most common way a word is used, usually in popular publications or in people’s everyday conversations. So any dictionary can offer no better than the conventional or common connotations associated with a word; and the conventional or common way of using many words is often too vague for a critical thinkers liking.

### **Activity 1.1—Thinking exercise**

Recognise the inadequacy of dictionary definitions

- 1 Look up in a dictionary the word ‘bucket’ *or* ‘machete’ or any other common noun describing an everyday object.
2. Now look up the word ‘blue’ or ‘glossolalia’ or ‘chocolate’ or ‘download’.
3. Contrast the definitions for ‘bucket’ and ‘machete’ with the definitions for ‘blue’ and ‘chocolate’ and ‘download’. Are they equally useful?
4. Look up some key words that you find in one of this week’s newspaper editorials. Is the dictionary definition giving you all the information you need to feel comfortable using the word?

### **2. OSTENSIVE DEFINITION**

Some commonplace definitions cannot be found in dictionaries because they cannot be written down. The meanings of some words can only be demonstrated face to face. An example is colour

words. Consider the word ‘red’. Words really don’t help to capture its meaning; it’s best to point to an object which is red.

Words that describe actions are sometimes also difficult to define using other words, for instance ‘pounding fufu’ and ‘agbadza’. It is best to point to people engaged in these activities in order to literally show what they mean. A definition that is provided by a demonstration in real life, not by using other words, is called an ostensive definition. ‘Ostensive’ comes from the French ‘ostendere’ which means ‘to show’. It is easy to remember if you know what it means to say that someone dresses ostentatiously, which means they dress in a showy way, to call attention to themselves.

To give an ostensive definition is to literally show or to point out what in real life is referred to by the word being defined.

For example, if you ask me for the definition of prime number, and I list some: “1, 3, 5, 7, 11, 13, 17, 19, 23” then I am giving an ostensive definition. Or if you ask me for the meaning of ‘pop star’ and I point to one standing in the street, or if I list some names of pop stars: “Beyonce, Michael Jackson, Reggie Rockston, Obrafour, Praye, Wutah, Traffic” then I am giving you examples of what the word means, which again count as ostensive definitions. When you give an ostensive definition you are directly using one or more members of the denotation of the word, bypassing the connotation of that word.

The drawback to this kind of definition is that it can be too limited. For instance there are very many shades of red besides the one we are looking at in the situation where I point at someone’s shirt to ostensively define the word red. Also, in order to use this kind of definition you already have to know something about the word’s use before you can make sense of my definition. For instance you have to know that the word red refers to a shade or hue of a colour, otherwise when I point to an example of a passerby’s clothing which happens to be a very dark or bright red, you might mistakenly think that ‘red’ is another word for ‘t-shirt’ or that it means ‘very bright colour’ or ‘very dark colour’ or that it means ‘a man who is walking in casual wear’.

There are very many words for which an ostensive definition would be inadequate.

### **Activity 1.2—Thinking drill**

Give examples of ostensive definitions

1. Choose a word that can be defined ostensively.
2. Then analyse why the definition might be inadequate.
3. Describe a situation where someone might not fully understand or be mistaken about the word’s meaning if all there was to go on was the ostensive definition that you have just given.

### **3. OPERATIONAL DEFINITION**

Another way of demonstrating the definition of a word is to give a list of instructions or to describe a sequence of steps or an operation or procedure which, when followed, will reveal or demonstrate how the word is used correctly. This type of definition is most often used in the natural sciences.

For example in chemistry, the operational definition is given for ‘water soluble’ in this way: (1) Take a clean beaker. (2) Add 50 cc of unsaturated water at room temperature. (3) Add 14 teaspoon of the substance to the beaker. (4) Stir five to ten times. (5) If the substance dissolves, then it is called ‘water-soluble’.

This type of definition is very helpful when you are working in a situation where the meanings of words can and should be made very precise and exact. But there are many fields of knowledge and many uses of language where this is not only impossible, it would not be suitable. For instance, imagine trying to explain the meaning of the word ‘faithfulness’ by giving an operational definition. Will it be adequate? Why not?

Later in this Unit, in Sections 2 and 3, we will discuss how different fields of knowledge require different types of word meaning (precise vs. open). Later in Units 4-5 we will consider in more detail why different modes of inquiry and different fields of higher learning require that we rely on words’ meanings differently.

### **Activity 1.3—Thinking exercise**

Create your own example of an operational definition.

For this exercise choose an activity or topic in which you are very familiar with the way words are used. For example: If you know cooking, give an operational definition for the word ‘banku’. If you know football, give an operational definition for the word ‘penalty-shot’. If you know weightlifting, give an operational definition for the word ‘bench-press’.

Now consider a word whose meaning is not very clear at all, but you are quite sure it is meaningful, and you use the word yourself quite often. This may not be easy to do; you have to think a long time about the words you use; we don’t normally do this, if ever.

It may help to scan a newspaper, or listen to a news broadcast or watch a soap opera or a movie and listen to the words people emphasise to each other in the course of a conversation. If no word comes to mind, use the word ‘God’ or ‘Onyame’ for this exercise.

Once you have selected a word that suits this description, explain why an operational definition would not be suitable. Write a brief paragraph or two on the limitations of operational definitions using this example. Or, discuss this in your study group.

## **4. THEORETICAL DEFINITION:**

Many of the definitions that are in the dictionary (lexical definitions) and which we commonly use are based on meanings that come from theories that have been accepted in specific fields of scientific knowledge, and from social studies or the humanities.

The use of these definitions is based upon the theory achieving general acceptance. For instance the definition 'Water is H<sub>2</sub>O' presupposes the existence of a theory in chemistry that is the basis for notation of molecules built up from physical elements. The symbol for oxygen is O, and H is the symbol for hydrogen. Modern chemistry teaches the principle that atoms combine together in specific structures to form molecules, and that huge numbers or moles of molecule constitute the substances we can observe in their liquid, solid and gaseous states of observed materials. This theory of substances changing states due to changes in their molecular behaviour is the basis for using the acronym H<sub>2</sub>O that stands for two hydrogen atoms that are bonded to one oxygen atom, to represent one molecule of water. So we call the definition 'Water is H<sub>2</sub>O' theoretical.

All the disciplines that we study in university generate vocabulary that depends upon theories that, in the main, have been accepted in that discipline. Some definitions are controversial within a discipline. Examples include the notion of 'development' in economics, and 'analyticity' in philosophy. Controversies about the meaning of theoretical terms is the subject of section 3 (open class concepts) in this Unit.

If the theory is faulty or if the theory is not reliable in every situation where it is supposed to apply, then there will be problems in depending upon the standard meaning of words that are dependent upon the general acceptance of the theory.

#### Activity 1.4

Identify the general source of a theoretical definition

1. For each of the following words or phrases, name the subject area of study where you would find the theory that is the source of its definition.

Nuclear family, Superego, **Inflation,phonetic,proletariat class**,sedimentary, semi-conductor, Higg's boson, Oedipal complex, bipolar disorder, antibody, reverse transcriptase,ambic pentameter, viral load, red-dwarf, drug resistant strain

#### Activity 1.5—Discussion option

Identify the general source of a theoretical definition

1. If you have never seen the word or phrase, or if you have seen the word before but you are unsure of its meaning, then look it up in a good collegiate dictionary. Or if it is a phrase then look up each of the words in the phrase. From the dictionary definition, can you tell from what field of knowledge or theoretical knowledge the definition is likely to be drawn?
2. Which if any of these definitions seems to you to be culture-specific, and therefore might require revision?

#### 5. STIPULATIVE DEFINITION

For the purposes of debate or analysis or policy making, it can be useful to establish explicitly that you agree upon a specific definition for the course of the exercise or discussion or the project. Or

as an author writing a long essay or thesis you can establish a stipulative definition by fiat. To further a debate it is good to find a stipulative definition by deliberation and agreement or through consensus.

For instance the standard dictionary definition for 'earned income' is 'any taxable wage earnings that issue at a rate determined in advance for a fixed duration under a labour contract.'

But in many communities—perhaps most people outside Accra and even throughout the big cities—the majority of people are not earning a monthly salary at a given rate per time period; nor do they earn income under a labour contract. Yet they are still bringing income to the home on which they and their family depend. So to do any serious thinking about earned income in Ghana, a stipulative definition probably must be proposed in place of or as a supplement to the dictionary definition. This way when you use the phrase earned income it will include in its denotation the ways people here actually support themselves and their families where no monthly wage salary or paycheck is coming in.

## 6. IDEAL DEFINITION:

There are some situations where people involved in a dispute may not be able to agree finally on the meaning of a key word that is central to their discussion. These people may decide to adopt a stipulative definition as described above, in order to pursue their discussion about the more substantive question of what the concept 'really' or essentially stands for.

We use this type of definition as a philosophical method for investigating vague or poorly understood concepts which are very important to us. The essential definition need never be discovered but in searching for it, we may arrive at a deeper understanding of the subject matter under investigation. In the dialogues he wrote that featured his teacher Socrates as a hero, Plato used to demonstrate Socrates definitions following the Socratic method of conceptual analysis by pursuing necessary and sufficient conditions for correctly applying a word demanding essential definitions from the citizens of Athens as a means of confronting them with the inconsistencies and inadequacies in their everyday thinking and their behaviour.

For example, some people insist that glossolalia (speaking in tongues) is a very crucial capacity of every true Christian. That is to say, some people insist that the ability to speak in tongues, and the practice of speaking in tongues very often, is a necessary feature or a deciding characteristic of faith in Christ, separating those who are true Christians from people who profess the faith but do not really count among those who have been 'chosen' by the Lord. Others very vigorously disagree and regard speaking in tongues as a learned skill and even a distraction from the true meaning of Christian faith. These two groups of people have what is called a substantive disagreement about what the 'essence' of Christian faith involves. They may never agree about the 'essential' or 'real' meaning of Christianity, but if they use the idea of seeking a 'real' or 'essential' definition of Christian faith as a tool or method to guide their debate, this technique of analysis of a concept can help them get a better understanding of their own position and see more clearly exactly where their views differ, and why.

To identify the ‘essence’ of a word’s meaning is very difficult. It should be regarded as a goal that need never be reached but it still is a useful way to review and reflect upon our intuitions and the collection of notions we have about the use of a word or the concept that it stands for.

Ideal or essential definitions are only achievable for words that are ‘well-defined’ as we will discuss in the next section of this Unit.

This type of ‘ideal’ or ‘essential’ definition is also called an eliminative definition. This label comes from the idea that if one has an eliminative definition, then the definiendum could be eliminated and replaced by the definiens in every context of the word’s use. This is because the definiens provides all those features and only those features of a thing correctly called by that word. The eliminative definition provides just the necessary and sufficient conditions for using the word correctly. For example, here is an eliminative definition of even number

An ‘even’ number is a whole number that is divisible by 2.’

This definition is called ‘eliminative’ because in any true sentence where the definiendum ‘even number’ appears, it could be eliminated and replaced by the definiens: ‘whole number that is divisible by 2’ without changing the truth of the statement.

### Activity 3.1—Discussion option

Discover how difficult it is to find *an* ideal definition of an everyday word.

Consider a very simple word like ‘table’. Think about one connotation of the word. (‘Table’ has several connotations: it is a type of furniture, it is a format for presenting information, a summary of data in a long published work, it is an administrative action that results in a topic being treated during a meeting.) Try to discover all the necessary conditions and all the sufficient conditions that make it correct to denote something by that word according to that connotation. If you are able to do this, you have created an ideal definition of that word and then you can say the word is well-defined. But it is hard.

### Sample discussion

A. What is a necessary condition of being a table?

- i. Is it necessary that a table be made of wood?
- ii. That it be 35 cm. above the ground?
- iii. That it has four legs?
- iv. That it be rectangular?

v. That it be used routinely to write upon? vi. That it

ever be used for any reason at all? Replies to A:

None of these conditions are necessary:

- i. there are objects called tables that are not made of wood— tables are made of aluminium, formica, plastic, stone, concrete
- ii. some tables are 2 or 3 metres high, some are 4 metres high, the height of a piece of furniture is not essential to its being a table etc.
- iii. some tables have three legs, six legs, or just one leg. there are tables that are circular, elliptical, kidney shaped, diamond shaped v some tables are only used as a work bench for drafting or for carpentry work, or for eating
- vi some tables have never been used for any purpose because they are made and kept for decorative purposes only, or built as stage scenery or props, or placed behind glass, or redundant in a room full of many tables

B. What is a sufficient condition of being a table?

- i. Is it sufficient that an object be sat near and written upon to be a table?
- ii. Is it sufficient that an object be a piece of furniture whose flat surface is raised above the ground, in order to be a table?

Replies to B: Neither of these conditions is sufficient:

- i. Someone might sit near a big cardboard box and eat or write on the flat surface, or near a wooden crate, or a fallen tree trunk; or a countertop, or one might sit next to a bed or another chair that one writes upon or puts things on.  
So this condition is not sufficient for something to be table rather than a crate or a bed or a counter or a chair- although you might say you are using the chair, bed, crate, tree trunk as if it were a table. But this implies it is not a table.
- ii. A bed, a chair, a lectern, a sofa, a book shelf, are all articles of furniture where the flat surface is raised above the ground; yet they are not correctly called tables. So this condition is not sufficient for fixing the denotation of the word table.

## Summary

We have discussed six types of definition: dictionary (lexical), ostensive, operational, theoretical, stipulative, ideal (essential).



- We reviewed problems and drawbacks that emerge with each type.
- We noticed that some of the types overlap:
  - In particular, theoretical definitions often appear as dictionary definitions.
  - A stipulated definition might be derived directly from the dictionary; so it could also be classed as a lexical definition.
  - Some operational definitions are also theoretical (e.g. Chi square test; prime number).

## SECTION 2: WELL DEFINED TERMS

### Introduction

If we can successfully provide an ideal or essential definition for a word then we call it well-defined. A word is well-defined just in case its definition makes completely clear which objects or individuals or properties are correctly called by that word W.

For example, the term 'even' number' introduced in section 1 is well-defined because given any whole number it is possible to tell from the definition whether or not that number should be called even. If the number is divisible by two without remainder then it is an even integer, and not otherwise.

### Objectives

- To understand what it means to say a word is 'well-defined'; To see why this is useful in some fields of study.

Almost all the terms of mathematics are all well-defined. So we can say in this case that the definition of 'even' is both operational and essential. Typically, only words that are well-defined are allowed in mathematics, unless they are introduced explicitly as 'primitive' or 'undefined' terms, e.g. the word 'point' in geometry has no definition, it is one of the few words that is accepted without definition, as a 'primitive term'.

But outside of pure sciences like mathematics, it is difficult to find well-defined words. In fact it is not very often that you can decide precisely what are the necessary and sufficient conditions for using even the most ordinary words that we use in our everyday lives.

### Summary

Words that have ideal or essential definitions are called well defined. Outside of the pure sciences, these are rare. A science called 'pure' if all its basic elements of knowledge can be collected together in a system of axioms and proven theorems using deductive rules of inference. We will discuss such a method of deriving knowledge in Unit 6.

## SECTION 3: OPEN CLASS CONCEPTS

## Introduction

Psychology and history and economics are often cited as prime examples of subject areas that contain many key terms that cannot be well-defined. In Unit 4 we will consider whether this is a reason to locate these disciplines on a borderline between science and art.

But as you just discovered if you worked on the summary exercise for section 2 on the previous page, surprisingly many familiar words cannot be well-defined. In public and personal life maybe most of the words we use regularly cannot be well defined: patriotism, terrorism, justice, piety, fidelity, beauty, intelligence, ethnic identity, democracy, love.

## Objectives

To understand what it means to say a word is ‘open-textured’ or ‘essentially contestable’ To realise how this can be a useful feature of key words in some fields of study

## OPEN TEXTURED WORDS

These are the words that represent open class concepts. This category is also called “essentially contestable” concepts. As we considered in section 1, the deeper or broader implications of a word’s meaning (for example, ‘justice’, ‘intelligence’, ‘equality’, ‘democratic process’, ‘national development’, ‘life’). In the case of getting a clear understanding of the meaning of these words, a dictionary definition is not good enough. As we noticed, a dictionary is merely a huge compilation of the common usage of words. Because the ordinary or commonsense use of a word is often vague and unclear, (the dictionary definition is usually only the starting point to seek further specification and elucidation of a word’s meaning.

Here are examples of words (or concepts) that are essentially contestable:

Income, Family, Intelligence, Development, Justice, Democracy, Rural, Orphan, Fidelity, Normality, Equality, Ethnicity, Modernity, Corruption

This label is derived from Alasdair MacIntyre’s “The Essential Contestability of Some Social Concepts,” *Ethics*, 84 (1973-74): 1-9.

The purpose of creating ideal or essential definitions is therefore to function just as a heuristic, to guide us in the process of exploring meanings that we hardly understand adequately. If you want to look deeply in the whole tangle of intuitions and associations associated with a word that is important to you, then it helps to have a systematic method, and this is how the notion of an ideal definition or essential definition is used—as a model. Socrates in Plato’s dialogues is famous for using the ideal of an ideal definition as a methodical way of interrogating his fellow citizens about important concepts including justice, piety, the state, love, wisdom, freedom, truth, beauty.

For many words, perhaps most words, essential definitions do not exist. Like other virtues, the well-definedness of key terms as presented here is an ideal that we might aspire to in the social studies and humanities but usually do not achieve.

## Summary

As you will discover, for some vocabularies it is not even desirable as a goal to pursue an essential definition. For some concepts. We need our understanding of the meaning of the word that stands for that concept to remain 'open' to many interpretations. This characteristic of welldefined words in one vocabulary and open-textured words in another vocabulary has sometimes been used as a way of distinguishing the natural and pure sciences from social studies and the humanities, as we will examine in depth later, in Unit 4.

## Summary exercise 3.1—Discussion option

Try to create an 'ideal' definition for one of the words on the list of open class concepts presented above activity 2.1 in the previous section 2. Report and discuss your experience.

## SECTION 4: DIAGNOSING PROBLEMS WITH DEFINITIONS

### Introduction

In this final section of Unit 2 you will learn some vocabulary to help you recognise and remedy flawed definitions.

### Objectives

To identify flaws in definitions as

- too vague • too narrow .
- too broad
- circular or begging the question

To be able to realise when a statement masquerading as a definition is actually expressing an opinion or a value judgment

Any of the six types of definition presented in section 1 may be flawed in one or more ways. Below we have different categories to diagnose why a definition is poor. These categories overlap. In other words, a given definition may be flawed in more than one way.

### Problems arising with definitions

- (a) too narrow (the definiens does not cover all the things that correctly belong in the extension or denotation of the word)

- (b) too broad (the definiens covers things that don't belong in the denotation of the word)
- (c) vague (the definiens does not specify adequately to determine what belongs to the word's denotation)
- (d) circular (the definiens repeats the definiendum); also called *begging the question* (when the definiens contains words that are just as obscure as the one being defined)

Explanations and examples:

To easily understand these labels for assessing the quality of a definition, think of the meaning of a word as having two aspects—the denotation and the connotation. The definiens might be correct or too broad or too narrow depending upon whether it captures the connotation of the dimension. Think of the connotation as a box which should be exactly the right size to contain all the members, and only the members, of the word's denotation. The denotation is the collection of all the individuals or instances in the world that are denoted or picked out or designated by the word being defined.

- (a) When a definition is too narrow.

The dictionary definition for 'earned income' is a good example of a definition that should be criticised as too narrow:

- (i) 'Earned income' is 'any taxable wage earnings that issue at a rate determined in advance for a fixed duration under a labour contract.'

If this definiens were used to specify the dimensions of a box containing all the individual instances of earned income in the world, then the box would not be big enough to contain many earned incomes: those of self-employed artists and craftsmen, self-employed caterers and cleaners and service providers that earn only as and when they have customers, performing artists like dancers and musicians who wait for functions when they are needed and do other odd jobs in the meantime to support themselves and their families, subsistence farmers and herders whose income is seasonal and not always paid monetarily but might be provided in kind goods or services, anyone in the informal sector who is a petty trader, or who is providing services from streetside kiosks or who are completely mobile, or those producing commodities in their backyards and selling in their frontyards. All these ways of supporting oneself and others are correctly called earned incomes and constitute over half the commercial economy in Ghana, but they would be left out of the denotation according to the connotation of 'earned income' described by the dictionary definition cited above. This shows that the dictionary definition of earned income cited above is too narrow.

- (b) When a definition is too broad.

On the other hand, to stipulate the definition of 'earned income' by revising it to contain the wide range of cash or kind relations that an agrarian economy depends upon, then we might stipulate a definition like this:

(ii) An earned income is any acquisition that benefits the recipient.

**Commentary:** If (ii) were accepted as the definition then it would destroy the important and familiar distinction between acquiring something as earned income and acquiring it as a gift, as purchased services, as an inheritance or a legacy, as a constitutional right, as stolen properly, as graft, or as a prize or donation that supplements what is correctly called one's earned income. The definiens of (ii) allows too many things into the denotation of 'earned income' which do not correctly belong so we say it is too broad. Here is another example of a definition that is too broad because in a container of this description we will be able to fit too many things that don't really belong in the word's denotation.

(iii) Love is a powerful emotional response.

**Commentary:** While statement (in) is true, it is a flawed definition of love because if you were to create a box that contains everything which is an emotional response, it could include jealousy, hate, envy, fear, resentment, rivalry, ambition, pride, vanity. Because all of these are powerful emotional responses but none are correctly denoted by the word love we say that the definition in (in) is too broad.

(c) When a definition is *vague*.

This is a criticism that applies to a definiens that is so imprecise that it is not clear what sort of things are being denoted by the definiendum.

(iv) Democracy is freedom for all.

**Commentary:** One might ask: all what? What sort of freedom? Are we talking about people (is anyone on holiday denoted by the word democracy?) or insects (is the Brownian motion of molecules that are constantly and arbitrarily changing location in any compound when in a liquid or gaseous state, correctly referred to by the word democracy?) or unpenned domestic animals (does democracy denote free range chickens or wild dogs moving freely in packs?)

This definiens simply doesn't give enough information of what type of entity it is which is being referred to as universally free. We don't know what at all is meant to fit into the box, from this connotation. So we say it is too vague.

(d) When a definition is circular or begging the question:

A poignant example is the definition of AIDS offered by the Centers for Disease Control (CDC) based in the USA. This definition is "responsible for much of the obstruction in the scientific appraisal of the AIDS situation. . ." Quoting Serge Lang further:

The CDC definition of AIDS is circular. It involves a list of 24-29 diseases (depending on the year), about 60% of which have to do with immunodeficiency (including TB), and 40% of which have to do with other types of diseases, including . . . cervical cancer. These

diseases are called AIDS (acquired immuno-deficiency syndrome) only when the antibodies test indicates that HIV may be confirmed or presumed to be present. If a person tests HIV negative, then the diseases are given another name. Statistics based on such a definition are very misleading, because the definition assumes the correlation

To put this critique in context, what follows in italics is one version of the official and complete CDC definition as it existed for public perusal on the internet in 2010 at many internet locations, including <[http://www.cdc.gov/mmwr/preview/mmwrhtml/00018871 .htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/00018871.htm)> **CDC definition of AIDS:**

***AIDS defining clinical conditions*** is the terminology given to a list of diseases published by the United States government run Centers for Disease Control and Prevention (CDC). This list governs the U.S. government classification of HIV disease. This is to allow the government to handle epidemic statistics and define who receives US government assistance. In 1993, the CDC added pulmonary tuberculosis, recurrent pneumonia, and invasive cervical cancer to the list of clinical conditions in the AIDS surveillance case definition published in 1987 and expanded the AIDS surveillance case definition to include all HIV-infected persons with CD4+ Tlymphocyte counts of less than 200 cells/uL or a CD4+ percentage of less than 14. Considerable variation exists in the relative risk of death following different AIDS defining clinical conditions. According to the US CDC definition, a patient has AIDS if he or she is infected with HIV and presents with one of the following: A CD4 + T-cell count below 200 cells/pi (or a CD4+ Tcellpercentage of total lymphocytes of less than 15%) or the patient has one of the following defining illnesses:

- Candidiasis of bronchi, trachea, or lungs
- Candidiasis esophageal
- Cervical cancer (invasive)
- Coccidioidomycosis, disseminated or extrapulmonary
- Cryptococcosis, extrapulmonary
- Cryptosporidiosis, chronic intestinal for longer than 1 month
- Cytomegalovirus disease (other than liver, spleen or lymph nodes)
- Encephalopathy (HIV-related)
- Herpes simplex: chronic ulcer(s) (for more than 1 month); or bronchitis,• pneumonitis, or esophagitis
- Histoplasmosis, disseminated or extrapulmonary
- Isosporiasis, chronic intestinal (for more than 1 month)
- Kaposi's sarcoma
- Lymphoma: Burkitt's, immunoblastic or primary brain
- Mycobacterium avium complex
- Mycobacterium, other species, disseminated or extrapulmonary
- Pneumocystis jiroveci pneumonia (formerly Pneumocystis carinii)
- Pneumonia (recurrent)
- Progressive multifocal leukoencephalopathy
- Salmonella septicemia (recurrent)

- Toxoplasmosis of the brain
- Tuberculosis, disseminated
- Wasting syndrome due to HIV

People who are not infected with HIV may also develop these conditions; this does not mean they have AIDS. However, when an individual presents laboratory evidence against HIV infection, a diagnosis of AIDS is ruled out unless: the patient has not undergone high-dose corticoid therapy or other immunosuppressive/cytotoxic therapy in the three months before the onset of the indicator disease OR been diagnosed with Hodgkin's disease, non-Hodgkin's lymphoma, lymphocytic leukemia, multiple myeloma, or any cancer of lymphoreticular or histiocytic tissue, or angioimmunoblastic lymphadenopathy OR a genetic immunodeficiency syndrome atypical of HIV infection, such as one involving hypogammaglobulinemia AND the individual has had *Pneumocystis jirovecii* pneumonia OR one of the above defining illnesses AND a CD4+ T-cell count below 200 cells/ul (or a CD4+ T-cell percentage of total lymphocytes of less than 14%).

Sometimes a statement is presented as a definition when in fact it is an emotive utterance or a value judgment, not a definition at all. For example:

(v) Hip life music is trash, (vi)  
Abortion is an evil act.

**Commentary:** Sentence (v) might be regarded as vague also, since all manner of things are correctly categorized as trash, except that it is used here as a negative or pejorative description. It could therefore be called question-begging, except that an opinion is being clearly expressed, so it is not a definition at all, even if there were no question arising. Similarly, (vi) categorizes abortion on moral grounds but does not indicate what define it. So it is a value judgment, not a definition.

Notice that a faulty definition can be correctly criticized as having more than one type of fault. For instance it is not contradictory to say that the following faulty definition is both too narrow and too broad; and it could be criticized in other ways as well:

(vii) Spirituality is a characteristic exhibited by a person who attends some form of church service or: a regular basis

Clearly this is too narrow since many people who are religious go to mosques, temples, or noninstitutionalised service at all. But it is also too broad as a definition because people who attend regular worship services may not all claim to have spirituality as a characteristic or as an interest or aspiration. They may practice the ritual of church attendance because it is their duty, or because it is socially advantageous, or because it is the custom of their family, or because they are afraid not to follow the convention. The definition seems to presuppose rather than spell out what spirituality means. So it could also be said to be begging the question. And since it fails to provide a definition of the connotation adequately it might be criticized as not a definition at all, but a covert form of imperative (i.e. if you claim to have spirituality then you should be attending a

church service regularly). Or it could also be said to be expressing a value judgment (i.e. spirituality should entail going to a church service on a regular basis).

### **Activity 4.1**

Identify problematic definitions

In the following list, consider each statement for its qualities as a definition. Classify the problem faced by labelling it as:

- i. Too narrow
- ii. Too broad
- iii. Vague
- iv. Circular or question begging
- v. Not a definition (identify what it is instead)

Notice that some of the sentences may not count as a definition.

1. The meaning of evil is, for example, murder.
2. To be courageous is to have courage.
3. A dinosaur is a pre-historical creature.
4. Violence is forcing someone to do something against her or his desires.
5. An identity is the sharing of identical features by two or more things.
6. Morality is the doing of what is morally right.
7. Philosophy is the study of the works of Plato.
8. Love is an emotional response.
9. Learning is a form of intellectual stimulation.
10. Dancing is the repetitive motion of the whole body or limbs.
11. All Volta ladies are snobs.
12. Religion is the opiate of the masses.
13. Terrorism is the greatest threat to civilisation of our time.
14. A terrorist is any enemy of the American way of life.



In the Answers section at the end of the book you will find some suggestions for interpreting the problems with the definitions above. They are not definitive. You may have an alternative assessment which may be legitimate; have you got reasons for your way of labelling the definition's fault? It may not be inconsistent with the answers suggested at the end of this book, but still your assessment may be correct—it depends upon how you explain your answer.

## Summary

In section 4 we have reviewed various ways that definitions can be criticized. Each label reflects a failure of the definiens in a definition to capture the correct connotation of the word, using the image of a container for the denotation:

- If the container allows too many things that are not proper members of the denotation of the word, then the definition is too broad.
- If the container described by the definiens does not allow things that belong to the denotation to fit in the container it describes, then the definition is too narrow.
- If the definiens does not give enough information to tell what sort of things are being referred to at all, or if the words it uses are so obscure that it can't be located what the word designates, then the definition is called vague or begging the question.
- If the definiens contains cognates of the definiendum then it is called circular.

More than one category of criticism can apply to the same faulty definition.

These categories are not mutually exclusive.

TIP: Critical thinking requires original thinking. Don't strive to memorize a list of applications of these labels or any of the categories you learn in this course. Instead, find a paradigm example that you can remember as a prototype, and then rely on your own judgment and reasons for criticizing future definitions and words in use.

## Summary exercise

Consider your results of Activity 4.1: can you find other ways of evaluating what is wrong with each of the sentences presented as definitions?

1. Review and redo all the Activities in this Unit that you had difficulty with, and raise any questions you have with your tutor or instructor.
2. Pay close attention this week to the editorials and opinion columns in the newspapers. Or listen to a favourite phone in talk-show or debate on the radio. Look for uses of words that require further clarification of their intended meaning by the speaker or writer. Look each of these words

up in the dictionary. Is a lexical definition going to solve the problem you encountered with how the word was used? Form a study group to discuss the result of your critically reading and listening to editorials, phone in talkshows.

### Unit summary

We say that a word is essentially incontestable, or open-textured, or that it stands for an open class concept if it is unlikely to gain universal consensus. People's lives and experiences are very different throughout the many regions where an international language is used (English, French, Spanish, Portuguese are examples of languages that are international in Africa). So it is that many key terms in the human sciences have connotations that do not fix absolutely their denotations. See Unit 4 for a more thorough treatment of this point about the human sciences (social studies). It is actually necessary that key words in the social studies and humanities are not precisely definable (not well-defined) and which are meaningful to us even though their meaning can diverge widely depending upon our backgrounds.

In this unit you learned:

- when and how to call for different types of definition;
- two aspects of the meaning of a word, which are captured correctly
- by a good definition: the connotation and the denotation of the word;
- when to expect words to be well-defined, and when to expect words
- to be open-textured, standing for open class concepts that cannot be and should not be precisely defined;
- when to use the method of searching for a 'real' or 'essential'
- definition as a technique for exploring our beliefs and intuitions about a concept;
- when and how to criticize a definition which requires revision to capture a meaning of a word.

## UNIT THREE: CONTRASTING TYPES DISCOURSE

### Introduction

In Units 1 and 2 you were introduced to techniques for studying the meaning and different uses of individual sentences. But most of the time when we gather information we do not think about individual sentences one at a time in isolation from each other.

In this Unit you will apply these same techniques to scrutinize batches of sentences working together—in written passages and spoken conversations, where sentences are ordered in distinct ways for different purposes.

When we formulate, or defend, or revise, or refute our own opinions or other people's opinions and beliefs, we need to analyse statements in organised sequences. It is the relations that exist within a batch or sequence of statements which are the chief focus of logical thinking and critical reasoning.

Sentences usually convey more than single bit of information or a single level of meaning at a time. We need to assess what is communicated both implicitly and explicitly, indirectly as well as overtly, in order to make correct evaluations and to draw correct conclusions from what we hear and read as critical thinkers and good practical reasoners. We also need to know when critical analysis is inappropriate, and when instead we need to employ more subtle forms of interpretation of meaning.

This unit will cover the following topics:

- |           |   |
|-----------|---|
| Section 1 | Distinguishing verbal disputes from substantive disagreements |
| Section 2 | Bracketing metaphorical and proverbial language               |
| Section 3 | Correcting ambiguity, vagueness, and equivocation             |
| Section 4 | Recognising types of discourse revealed in passages           |
- Argument
  - Narration
  - Instruction
  - Rhetorical polemic

## Objectives

Upon completion of this unit you will see where logical analysis belongs because you will be able to:

- distinguish between a verbal dispute and a substantive disagreement
- appreciate the deviations from literal interpretation required by metaphor, allegory and proverbial discourse
- recognise when ambiguity, vagueness, and equivocation require correction
- identify when a passage contains an argument rather than a narrative, a set of instructions, or self-asserting rhetorical polemic

## SECTION 1: VERBAL DISPUTES VS. SUBSTANTIVE DISAGREEMENTS

### Introduction

A verbal dispute is a disagreement which rests upon an inconsistency in the way the disputants are using the same words. Usually this is not a fruitful kind of disagreement. Once the meaning of key words is clarified so that both sides of the dispute are relying upon the same meanings, then either it becomes clear that there is no real difference of opinion, or it becomes clear instead what is the

nature and quality of their disagreement. So coming to an agreement about the use of words will allow progress towards the goal of discussion, which is to reach greater understanding of a problem, or to articulate a point of view about the problem and to give good reasons why it should be embraced.

### Objectives

- To discover how correcting inconsistencies in the use of words can help to fix a disagreement that is steeped in confusion.
- Correcting a confusion does not always mean we can wipe away a disagreement by resolving people's conflicting views.
- Correcting confusion may involve instead forwarding the discussion to a productive level, either making clearer what the disagreement is about, or reaching a deeper, wider, or more complicated level of the disagreement.
- Substantive disagreement is a good thing. Or we can learn how to make it so.

### THE NATURE OF DISPUTES

As just described in the introduction, some conflicts are based on confusion. We call these disputes merely 'Verbal' if they are the result of inconsistency in the use of words. In contrast, a substantive dispute is one that exists because each side of the disagreement has in view different facts or subscribes to contrasting values. Substantive disagreements can be pursued fruitfully on logical grounds. Life is full of disagreements, especially academic life. It is out of disagreements that we come to a better understanding of the world and ourselves and each other.

Another basis for disagreements is the constant divergence and shifting tide of our feelings and opinions and reactions. Different reactions and feelings are stirred up in each of us over any given topic and usually our feelings and reactions change over time. Subjective reactions are in constant flux, and feelings vary between and within people depending upon our varied backgrounds, circumstances and experiences.

Asserting yourself in polemic or rhetorical or emotive exclamations while I do the same does not yield a divergence of views that add up to a logical inconsistency. This too is only an 'apparent' argument that cannot reach resolution or make any advance in understanding of the objective world, although we can learn a lot about each other and ourselves by listening to each other expressing our feelings. When people voice their subjective reactions, their sentences need to be recognised as emotive utterances.

Such sentences tell us about the speaker. This is why they are called subjective utterances. When people are voicing their subjective feelings then this is just a part of the fabric of social reality and normally it does not warrant any further diagnosis. As the saying goes, 'people are entitled to their opinion'.

It is very important to know when someone is doing this. Because very often, people's personal preferences or feelings are mistaken as a legitimate basis for making policy. Sometimes if an

individual wields a lot of political or financial or professional or social power, his or her subjective opinions get confused with the facts, or with a good logical reason for accepting what he or she says. It is important for critical reasoners to realise the difference between an objective fact and an individual's subjective opinion.

In order to realise whether a statement constitutes a disagreement that is merely verbal, or polemical, rather than a substantive difference in viewpoint, you must pay very careful attention to what is being said or written, and then ask the following four questions in any given situation of discursive conflict.

### Activity 1.1

#### Distinguish verbal disputes from substantive disagreements

1 Will the disagreement be resolved by all parties accepting a stipulative definition? If so, then the participants in the argument were engaged in a verbal dispute. (Recall the notion of stipulative definition introduced in Unit 2).

2. Is the proposal of a stipulative definition likely to be resisted by one or more of the parties in the dispute? If so, then there may be a substantive disagreement between the participants.

3. Suppose a stipulated definition of key words is accepted by everyone involved in the discussion. Once agreement is reached about the use of key words, is there still unfinished business and unresolved conflict of opinion? Do the participants have good logical reasons for their different viewpoints? If so, then again we say they are engaged in a substantive disagreement.

4. If a disagreement prevails, but there are no reasons available, then the difference may be just between subjective points of view. If the statements are actually emotive expressions, then they cannot contradict each other because they are neither true nor false except as facts about the different speakers (one loves A, the other hates A). Expressing different opinions or feelings is an important part of social interchange, and is to be expected because people have very different experiences and reactions to the world. But these interchanges are unlikely to be a fruitful focus of logical analysis and critical assessment. 'People are entitled to their own points of view'.

Apply the questions above to each of the snippets of conversation below. Read the commentary that follows each conversational fragment, as a way to inspire your own insights about what the conversation is meant to illustrate.

1. That woman is not a real Christian because she does not speak in tongues. No, she really is a Christian since she was baptized and confirmed in the United Methodist Church.

Commentary: These people clearly disagree about what is essential to having Christian faith. The participants in this debate might not be able to arrive at a stipulative definition for Christian unless they realise it is only a means to get at the deeper issues about which they disagree. But it is not obvious that these sentences are correctly understood to be emotive expressions. This is likely to

be a substantive difference in matters of faith, but it is not resolvable using critical analysis alone. For there are many ways to experience belief in Jesus Christ; perhaps all are legitimate. Or, perhaps there is only one way to interpret the Bible. Tolerance of varied interpretations of biblical text is called ecumenism. Single-minded interpretation is called fundamentalism. These and other ways of interpreting the Bible are vigorously disputed among some Christians. Similar theological disputes obtain among devout Muslims reading the Qu'ran, committed

Buddhists reading the Pali canon, and pious Hindus reading the Bhagavad Gita. One has to study theology to make progress with understanding the objective implications of this sort of substantive disagreement.

2. That man is playing a wooden flute and the other musician is playing the apentemma.  
-No; I am sitting closer and I can see that one of them is playing a clarinet and the other is playing on a fontomfrom drum.

**Commentary:** In this case, the person sitting closer probably has a better view of the instruments and the players, so here the disagreement can be resolved by appeal to the facts. It is also possible that the first speaker needs to learn what the words 'clarinet' and 'fontomfrom' mean. So the first speaker can be corrected in his use of the words 'flute' and 'apentemma' by learning that he has misapplied them on this occasion. The second speaker has resolved their dispute by giving a report of the facts, or by providing an ostensive definition of 'clarinet' and of 'fontomfrom', or both. So the original disagreement can be said to have been merely verbal.

3. Kpanlogo is a traditional folkloric dance that our Ga ancestors used to dance only at funerals for hundreds of years.

— No; Kpanlogo is a neo-traditional popular dance that the dance-bandleader Otoo Lincoln and his group created in Bukom Square, Accra, around 1962. He relied on the old funeral dirges to build up a versatile form of popular dance which suits every occasion nowadays, including funerals.

**Commentary:** Here again is a case where more knowledge of the musical history of Ghana's popular music forms can correct the first speaker's use of 'Kpanlogo'. Since the correction of what the word means resolves the disagreement, we can say that this was merely a verbal dispute.

4. African Americans are really American.

—No, African Americans are really African

**Commentary:** Among Americans it is highly charged and significant where people originally come from since the whole society was created by and has been comprised of immigrants, except for the indigenous Native Americans most of whom were killed in a few generations through systematic genocide.

This conversation reflects a deep dispute that reveals the shifting politics of identity. It is possibly similar in its content to the conversation in item 1, although probably much more emotionally charged because of the role Africans have played in the development of American society. How to resolve the question of one's social or ethnic identity for some people invites hugely substantive disagreements; this is not a verbal dispute.

5. The Head of State is not really a Ghanaian since he's half Scottish.

-No, he is a Ghanaian since he is our leader and he is a Ghanaian citizen with a Ghanaian passport.

**Commentary:** This is likely not to be just a verbal dispute about what it means to be a Ghanaian citizen. This discussion may rather display indirection to avoid open and blatant criticism of a high official, particularly a head of state. Openly criticising a head of state may be regarded as committing a serious offence or might be regarded as very bad taste or as unpatriotic. At times when past presidents have been the focus of disapproval, their nationality has been challenged, rather than voicing openly a complaint about their performance. Once a stipulative definition is agreed upon about what are the requirements to be a Ghanaian citizen, then possibly the underlying objections to the individual in question or criticism of his performance might emerge if the discussion is continued and circumstances allow candid disagreement.

6. You are not properly registered as a resident of this Hall; yet you are occupying a room, and this is illegal. I will have to take the appropriate actions against you.

-That's not fair! I'm not doing anything wrong! Legon Hall is my Hall, and I'm only perching here! Everybody is doing it.

**Commentary:** Here we have a definite example of the second speaker applying a persuasive use of words to try to encourage a point of view. Occupying a room illegally, without being registered for it, is what 'perching' means in the Legon community. But to call a practice 'illegal' usually highlights its ignoble nature and typically indicates disapproval—except in rare cases where the morality of the law is being challenged. The hall official is expressing his disapproval. The student is using a euphemism that underlines the fact that the same action is widespread and conventionally or covertly accepted. The following questions arise about what these two disputants are saying, although they are not asking these questions explicitly: Does the fact that an illegal practice is being indulged by everyone and is covertly tolerated make it ethically acceptable? Is the fact that something is illegal to do a sufficient basis to penalise one individual—if the practice is tacitly condoned as a widespread, makeshift response to an untenable housing problem?

The verbal disagreement concerning how to refer to the action of living unofficially in a residence hall is only a superficial cover which deflects from the real and substantive questions about the ethics of this action, and the ethics of sanctioning one person for meeting his needs according to an established convention. So this is a substantive disagreement which has yet to be spelled out.

7. These US army personnel are helping Iraqi citizens because their presence maintains a peaceful and secure environment, thanks to the sacrifices they are making in their effective peace-enforcement strategies.

-These US soldiers are imposing martial law and have orders to target civilians, so they pose a threat to Iraqi citizens and their belligerent presence increases the danger of freely moving in the city. Their presence is provoking terrorist attacks where none occurred before they came.

**Commentary:** Here are two sentences describing the same activity, both of which are exhibiting the persuasive use of words. The first person chooses words that make the U.S. instigation of war in Iraq sound like a noble venture. The second sentence describes the same military initiative in a way that condemns it and thus expresses severe disapproval. It seems that these value judgments may not be reconcilable. More of the discussion would have to be revealed in order to see whether exploration of facts on the ground in Iraq would bring this disagreement to a close.

8. The reason the environment is degraded and the people stay so poor in Northern Ghana is that the population density is increasing too rapidly; in other words they have too many children; and the environment can improve only if people change their sexual behaviour.

— No, if you look more carefully at the way government money is borrowed and now policy is set to determine how little is spent in Ghana on social services, you realise that the increasing poverty and environmental degradation in Northern Ghana results from low infrastructure investment, few road networks, minimal or no support for subsistence agriculture, degraded policies in education and health care, employment options dwindling, date back to the development bias that favoured the southern coastal regions by the British colonial administration.

**Commentary:** This is an example of two conflicting explanations for environmental degradation in Northern Ghana. This disagreement should be resolved through analysis of further facts presented by the second speaker, which seemed to be overlooked by the first speaker.

## Summary of Section 1

In this section we learned to recognise verbal disputes as inconsistencies in the use of words, giving rise to confusion that results in disagreements. But inconsistency in the use of words is the most superficial and easily corrected source of confusion and disagreement. If people are still having a disagreement which cannot be resolved by improving their access to the facts or by making more explicit the meaning of their words by appeal to a dictionary, or by appeal to a relevant theory, or by a stipulative or ostensive definition, then we call their dispute a substantive disagreement.

## Summary Exercise 1.2

Return to any of the conversations in Activity 1.1 recorded above where a substantive disagreement is underlying the apparently verbal dispute. Continue the conversation yourself by writing two or more lines of further dialogue for each of the speakers. Write declarative statements that clearly convey each speaker's value judgment or factual judgment about the topic, so that the disagreement between them becomes clearer and more explicit than it was before you came to meet their conversation.

## SECTION 2: BRACKETING METAPHORICAL AND PROVERBIAL LANGUAGE



## Objectives

- To classify for special treatment sentences that have to be interpreted for their variety of meanings and layers of symbolism
- To appreciate that some kinds of discourse are not the proper focus of ultra-literal, explicit and objective logical analysis

## Introduction

Some declarative statements cannot be interpreted literally in the way we understand straightforward factual statements. If they are interpreted literally, the entire meaning of these sentences will be completely lost. Among these are metaphors and proverbs.

A metaphor or a proverb, like a parable or symbolic allegory, is an intentionally and purposefully vague use of language which carries many associations. This multiplicity of indefinite meanings is the value of metaphors and proverbs: they are generally used to make an indistinct open-ended impression or to have an affect on listeners which is flexible and relevant in a wide range of situations, subject to each individual's own personal and unique point of view and experience. Metaphors and proverbs are among the many types of sentence that can carry more than one meaning simultaneously, and which also have different functions, depending on the circumstances.

This section stresses the limits to the tools of logical and critical analysis which are taught in this module. There are uses of language that require a more elaborate, intricate, more flexible and sensitized study of meaning than can be engaged using just the skills introduced in these lessons. Analysis of metaphor and proverbial discourse requires the advanced techniques used by critical literary theorists, by speculative, creative analysts who study oral knowledge traditions, by commentators who accentuate the aesthetic appreciation of drama, of music and fine art, by interpreters of poetry, and by theologians dedicated to the exegesis of sacred texts.

Metaphors and proverbs can be used to express a value judgment or to describe the way the world is and also to give instructions on what to do, all at the same time, the way a painting or a sculpture can communicate meanings of different types simultaneously.

To be very clear in conveying information it is usually best to avoid metaphors, proverbs, poetic and literary indirection.

But to inspire, motivate, advise, to speak on topics that are socially powerful and highly charged, metaphors are very useful. These multi-purpose speech acts should be reserved for special contexts where critical reasoning must be applied in a specialized and amplified way.

Examples:

- (i) Juliet is the sun. Her eyes are deep, fathomless pools.
- (ii) We are like sheep.
- (iii) Though we journey through the valley of death, we are not alone.
- (iv) The Lord is my shepherd; I shall not want. (v) Be ye like the lilies of the field.

These statements are not literally true. But (i) conveys the speaker's feelings about Juliet. Perhaps (i) is a way of expressing the speaker's love for, or dependency upon, Juliet. Statements in (ii-v) inspire and instruct us to live our lives more spiritually and less materialistically. They teach us to find security and build faith beyond what is evident in this material world. But they do so in a practical way, by making reference to very material and manifest things: valleys, shepherds, sheep, lilies, fields, loneliness. Thus metaphors and proverbs can be used to advise listeners on how to behave or what attitude to take towards other people or about a particular subject which is very important and therefore uncouth to speak about directly. Depending upon the situation where a proverb is used, it can have many different meanings.

We consider proverbs therefore to be a type of speech act which is not suitably subjected to simplistic reductionist logical evaluation. A proverb cannot be taken literally. It can be a way of advising, reprimanding, directing, guiding, inspiring, motivating, reassuring, subduing, impressing, mentoring, the listener, but it must be understood as a symbolism for something else besides what it literally says, whether the statement is literally true or fanciful.

The hen also knows when the sun will rise; but only the cock crows.

This proverb may be a value judgment or an imperative that women should not speak in public or express their opinions too forcefully. In a certain context it might be used to chastise an individual or to prescribe behaviour: Don't speak your opinions freely if you are a woman.

Sometimes a metaphor can be interpreted to convey information about the way the world is, in order to advise a correct course of action. Similarly, proverbs can be interpreted in a way to describe the way the world is and at the same time advise an attitude that will bring about success.

Example: No one can lick their own elbow.

It is a matter of fact that because of the body's structure, this statement is true. But it is not only a true factual statement; it is better understood as an imperative advising the listener that it is necessary to rely on other people; that one cannot do everything oneself; that co-dependency is not just necessary but it is a good and sensible thing; that humility is appropriate; that there are limits to what is feasible to do on one's own and that hubris is ill-advised; to avoid attempting ludicrous ventures, one should not pursue impossible goals. So the same sentence is functioning as an imperative and as a value judgment with multiple messages.

Although rich as prescriptive imperatives, metaphors are generally not a reliable way to convey information because so much depends upon the situation and mood and reception and background knowledge or preparedness of the listener, to appreciate and interpret the meaning of a metaphor. They cannot be relied upon to convey a single objective meaning.

If a declarative statement is intended, It is usually a good idea to find a more explicit way to express one's thought. Evaluating metaphors

If we are to assess the quality or usefulness of an analogy or a metaphor, we need to consider the ways in which the two items being compared are similar and the ways they differ. Then we can decide if the similarities outweigh or over-ride the differences in any illuminating or insightful way. If the answer is yes, then the metaphor is a good one. If the answer is no, then we might criticize the metaphor as based on a bad analogy. For example: in the metaphor 'life is a game' the subject is 'life' and the focus word of the predicate is 'game'. One way that these two things are very different is that usually the end of a life is highly significant and its termination normally is not within our control; whereas it is of little or no consequence when we have to end a game and we can do so at will. Another difference is that once a life is terminated then it is over forever in the form that we have known it—whereas a terminated game can be resumed; or another session of the game can be started as and when we wish.

One way that a life and a game are similar is that both require strategies to succeed. Both are meant to be enjoyed. Both involve elements of chance.

## Activity 2.1

### Interpreting metaphors and proverbs

For each of the following sentences, first interpret each sentence by deciding and spelling out literally what the things being compared are, and whether a proverb is using them to perform a value judgment or a directive, or an instruction.

Secondly, for each sentence contrast the two things being referred to, by mentioning at least one way that they are unlike each other. Then look for one or more ways in which the subject and the focus of the predicate are similar.

Thirdly, describe in a straightforward way the factual or value judgment that the metaphor is intended to express,

1. Life is a game.
2. Life is war /bra ye ko [Akan]
3. Love is a journey
4. Life is a journey bra yeakwantuo [Akan]
5. Juliet is the sun.
6. Peter is the rock of the church
7. John is an Einstein.

8. Charlie is a cesspool.
9. No man is an island. .
10. The crooked and gnarled tree will never be cut down for timber.

When you should not use a metaphor

What we will consider now are situations where metaphors are misapplied. We have already observed that metaphors are usually inappropriate when supplying a definition of a word. This is because a metaphor presupposes or requires an understanding of the literal meaning of the words involved. Recall from Unit 2 in Section 4 Activity 2.4

(i) Religion is the opiate of the masses

We observed that if this sentence is offered as a definition of 'religion' then it is faulty because it is begging the question of what 'religion' ordinarily means, rather than providing an answer to this question which is what a definition is supposed to do.

We need to examine this as a value judgment, but still it compels us to ask more questions than it can answer. An analogy is being drawn here, famously by Karl Marx and Sigmund Freud, between religious observances and the use of drugs. But if you don't already know what is involved in religious observances and the effect they have on people, then you cannot appreciate why Marx and Freud suggest that the institutions of religion in society function like narcotic influences upon the thought and behaviour of a person: a narcotic temporarily blunts a person's awareness of surrounding reality, making the person relax or calmed down, artificially relieving stress by manipulating the person's reactions rather than treating the source of his stress in the environment. This is a temporary and superficial solution to people's dissatisfaction in life, and that is what the statement is implying about religion: it is being characterised negatively as a superficial and inadequate means of manipulating people's responses to their environment, rendering them as socially and politically ineffective agents.

But unless one already subscribes to this negative opinion of religion one is unlikely to be convinced that this statement depicts religion accurately. As a metaphor, it is a vague depiction of religion, because the statement does not provide any reasons or evidence to support or elaborate this caricature of religion. Advocates of religious observance have no basis for changing their view, they will simply reject this analogy as a distortion or misrepresentation of religion. So we don't actually learn anything about religion from this statement; we rather learn something about the speaker's feelings about religion.

Metaphors are good lead-ins to motivate thoughtful discussion and to provoke controversy. When you need language to act as a magnet to pull together many associated thoughts and intuitions that require further investigation, then metaphors are a very helpful starting point. Their drawback is that their interpretation is open-ended and indecisive and so they do not serve very well to describe the world in a testable, rigorous way.

## Summary

In trying to present an objective support to defenda value judgment or a factual belief, appeal to metaphors usually are not helpful. Metaphors, to be effective, require that their source already enjoys authoritative recognition. One might say that metaphors only ‘preach to the converted’. Unless your audience already shares the value judgment being conveyed, it may not be appreciated at all or its validity might be challenged by people who do not already share the view of the speaker.

However, proverbs have many other useful and important functions in communication about practical reasoning and decision making, because metaphors and parables and proverbs can elaborate, inspire, motivate, and counsel. Analogies also have important roles in science to explain natural and social events, as will be introduced briefly in Units 4 and 8 of this module.

## SECTION 3: VAGUENESS, AMBIGUITY AND EQUIVOCATION

### Objectives

To recognise three common vices of declarative speech which require correction. The goal of declarative speech is to be as explicit and clear as possible in describing, prescribing, generalising and predicting the states of affairs in the world.

### Introduction

This section will introduce how to diagnose and improve the use of language when it is designed to describe and explain the real world as clearly and objectively and explicitly as possible. This is a use of language that avoids symbolism.

This is the domain where ambiguity, vagueness and equivocation have little or no productive role to play. This is the limited but strictly monitored arena where logical tools of critical thinking apply.

### VAGUENESS

When the meaning of a sentence is objectionably vague, it is usually because the choice of the component words has not been carefully considered. This can be problematic when the sentence is supposed to state something factual and specific about the way the world is, or if it expresses a value judgment about what should be the case, or if it conveys a directive about what precisely should be done.

The use of a word is vague if not enough information is conveyed so there is no way to tell exactly what in the world the word is referring to. Technically this means that words are vague when their intended denotationis indeterminate.

Example:

1. Forcing a girl to have sex is like showing her you are a real man. *'real man' in this context is vague. What behaviour demonstrates that? Why?*
2. Every graduate who cannot find a job is not looking hard enough, 'looking hard enough' is vague
3. Traditional beliefs should be discontinued. 'Should be discontinued'—how are beliefs which have been in the system for indeterminate periods of time ('traditional') discontinued?
4. The University is undermining the students' political power bloc. *'Undermining' and 'students' power bloc'—what is actually is the activity taken by the institution being referred to here? What is the students' power bloc?*

### Activity 3.1

#### Locating the source of vagueness

Decide for each of the following items 1-5 where to locate the source of the vagueness.

1. A breakdown in morality is ruining our youth and corroding the society.
2. The former Vice President of the World Bank, Mr. E. Jaycox, told the *African Farmer* in 1993 that without structural adjustment policies, Sahel girls would have never learned to read.
3. The economy is growing day by day.
4. The Millennium Development Goal number 7 requires integrating the principles of sustainable development into country policies.
5. The Millennium Development Goal number 3 mandates that we empower all women by 2015.

### Activity 3.2

#### Correcting vagueness

For items 10-16, identify the words or phrases that are responsible for the vagueness. Discuss how to correct the vagueness. Rewrite each item so that the vagueness is eliminated.

6. He said he will be here any moment from now.
7. We are sorry to say that we are looking for a younger person for the job.
8. Temporarily out of service. We are unable to dispense money at this time.
9. This practice counts as cruel and unusual punishment so it should be banned.
10. This ritual is a Vandal tradition so you have no right to object to our culture.
11. We need to protect these creatures since they are an endangered species.
12. The way these students disrespect and protest all the time is becoming a threat to the very fabric of society.
13. Ours is a developing country so what do you expect?

14. Our citizens are dying of AIDS because the youth have no sense of right and wrong and indulge all the time in inappropriate behaviour.
15. We demand equal pay for equal work.
16. The government provides adequate social services, so what is your problem?

### Ambiguity and Equivocation

The use of more than one connotation of a word in the same context without any signal of the shift with the intention to manipulate or to persuade is called equivocation. As a rhetorical ploy, equivocation will be criticised in Unit 10. Here we will focus upon a feature of some words that the tactic of equivocation depends upon: this feature is called the ambiguity of a word's use. If the intended meaning of a word seems to shift back and forth between two or more distinct connotations without warning or indication then the use of the word is said to be ambiguous. A quicker way of saying this is to describe the word as ambiguous. But this shorthand way of speaking is misleading, since almost every word has more than one connotation (look at the definitions on a page of a dictionary; notice that most entries list more than one meaning for the word). Having more than one meaning is not enough for a word to be criticized as ambiguous. We reserve this critical label for when a word appears in a given sentence and the context leaves it unclear which of two or more of distinct known connotations are intended. Then the word is said to be ambiguous. Sometimes this is due to the syntax of the sentence, or the lack of good structure. For example:

*I've always wanted to apply to get into a post graduate studies programme, and now I finally have.*

This could mean either that I have now finally applied, or I have now finally gotten into one. The ambiguity would be resolved if the last phrase were completed:

*and now I finally have applied to one.*

*or... and now I finally have been accepted into one.*

When ambiguity is very obvious, apart from sometimes being amusing, it can be instructive: it can illustrate that different ways of organising and structuring a sentence can make your intended meaning more or less easy for a reader to understand:

*Example: Disappearing into a hole, I saw a mouse.*

This is grammatically correct but misleading. Does it mean that I was disappearing into a hole as I saw the mouse? Or does it mean the mouse was going into the hole as I watched from a stationary position? The ambiguity here would disappear if the phrases are rearranged and one of these meanings was clear:

*I saw a mouse disappearing into a hole.*

By using more than one function of words in the same sentence, ambiguity is created for a little humorous effect: Here we find 'flies' used as a subject and as a verb in the same sentence. Also

‘like’ is used first as a relative pronoun (qualifying or describing how time flies) and later as a verb (what fruit flies do):

*Time flies like an arrow but fruit flies like a banana.*

These are cute word jokes. But when ambiguity is responsible for misleading from premises to a conclusion, the effect stops being funny and becomes dysfunctional, leading people to draw false conclusions and to take ill-founded decisions. This is the case where passages move from premises to a conclusion, or conversations where a dispute is maintained, on the basis of ambiguous words. These are cases of equivocation.

Example of Equivocation:

Speaker A: - Discrimination against homosexuals is a violation of people’s basic human rights: we have to campaign to change the sodomy laws that exist in many countries still, because these laws that turn into a crime a minority group’s sexual orientation are a breach of those individual’s constitutional rights, sometimes in the same country. This is the case in Ghana. These laws that ban homosexuality are immoral. No one should be turned into a criminal simply because their private conduct deviates from a social norm.

Speaker B: - No, brother, you’ve got it all wrong. Homosexuality is an abomination because it is a violation of God’s law which defines our essence and God’s purpose for us. Just see what it says in the Bible or in the Qur’an if you are in any doubt about it. The criminal code of Ghana is a reflection of God’s law and should be maintained.

Commentary: The substantive disagreement here about homosexuality is based on an ambiguity of the word ‘law’. Notice that speaker A is using the word ‘law’ in one sense, as it connotes man-made civil and criminal laws. Statutes recorded in law books are made by legislators and are relied upon to determine whether citizens should be sanctioned or punished for doing something illegal. The second speaker B is using ‘law’ in three other senses or connotations of that word.

The second speaker moves between (i) the meaning of ‘law’ as it connotes theological doctrines (what is written in sacred scriptures, “God’s purpose for us”) and (ii) the first legislative or manmade connotation of law (e.g. Ghana’s criminal code) and (iii) the sense of ‘law’ that connotes a moral principle (“Violation of our essence and God’s purpose for us”). Speaker B is thus equivocating which is misleading and improper, whether intentional or not, and needs to be corrected.

This is not to say that Speaker A is correct. It is to say that Speaker B’s refutation has not provided good reason to think Speaker A must be wrong. The topic remains open for further consideration. The discussion might progress and be illuminating of the real or substantive points of disagreement if these vacillations (swinging back and forth) between different senses of law are brought under control. Five different senses of law will be discussed in detail in Unit 5.

Activity 3.3



## **Identifying the root of equivocation**

Consider this passage describing a court trial. Decide which word is occurring in the passage whose ambiguity is being exploited by the defendant's lawyer, who could be criticized for equivocation.

The judge said that the law could only hold sane people as fully responsible for their criminal actions. Therefore, the foreigner Johnston was not going to be sent to prison because it was shown by the report from the psychiatrist that at the time Johnston committed the offence he was mentally disturbed. Instead the judge ruled that Johnston should be extradited to his own country on the grounds that he needed psychiatric help and the state could not afford to provide it for him here in Ghana. Other than that if he wanted to avoid deportation he should seek psychiatric help which he pays for himself, and prove to the court that he is undergoing treatment. The defendant's lawyer stood up and argued that he would appeal this with all due respect to the court, because he could see that if Johnston was not responsible for the act then he should not have been arrested and tried in the first place.

### **Activity 3.4**

## **Diagnosing ambiguity**

Each of the following sample newspaper headlines can be read in two ways because of the ambiguity of word meanings. We deal with phrases to focus specifically upon the shift between meanings, but the same skill can be applied to full passages.

- (i) Discuss or write out for yourself two different interpretations using other words
- (ii) Identify the words responsible whose ambiguity is responsible
- (iii) Rewrite the headline as it might have been intended to avoid ambiguity

1. Drunk gets nine months in stolen laptop case
2. Military head seeks arms.
3. Prostitutes appeal to pope
4. Teacher strikes delaying WAEC candidates
5. Police squad helps rabiddog bite victim
6. Enraged billy goat injures farmer with cutlass
7. Miners refuse to work after death
8. Juvenile court to try shooting defendant

9 Stolen jewels discovered by tree

10. Two American oil tankers collide in the Gulf of Guinea;’ one dies

11. Two sisters reunited after 18 years in market stall

#### SECTION 4: TYPES OF DISCOURSE REVEALED IN PASSAGES.

##### Introduction

In this context ‘argument’ does not connote conflict or altercation necessarily. Argument in the logical sense is the structure of statements relating to each other as premises leading to or supporting the truth of a conclusion. There is no need for a fight or disagreement. As we will see in Units 7-10, arguments are used to support hypotheses in the sciences; arguments are the form that a scientific explanation or prediction takes. Argument is used to justify or help draw a decision about what needs to be done.

##### Objectives

To distinguish passages that contain:

- Arguments, narrations of events, sets of instructions, verbal self-assertions using rhetoric or polemic.

A narrative is a passage which reports a sequence of events in order of their occurrence; the passage may also contain comment upon the episodes recounted by making empirical claims that can be established as true or false based on documentation or evidence. The sentences are ordered according to time.

##### Example

The students went to the Ministry of Education with their proposal to cut down on fees. But they were sent back to the school to discuss with the school authorities. They were told it was an oncampus concern. So they went back to the school administration. The administration told them that they would have to petition the Ministry of Education because that is where the decisions on the budget are finally made. Then someone had the idea of approaching the Ministry of Finance, so the Secretary of the SRC will make an appointment to see the Director of the Budget next week.

A passage that gives instructions describes as process or sequence of things to do in a specified order; it also might provide a list of directives to follow to accomplish some desired effect, like a prescription.

##### Example

Before beginning to swim at speed it is important to stretch: bend your head completely forward, then slowly all the way back, then left and to right, then roll your head in both directions. Lean over slowly to stretch your back, hold the stretch for a few moments; stretch also your triceps and biceps; also rotate your shoulder cuff rotator muscles by moving in large circles ten times in each direction. This will all prevent injury.

A rhetorical polemic is a passage that communicates (usually strong) feeling or persuasively vents an opinion.

### **Example**

I hate running these lab tests. Every time I am exposed to the diseased plants I fall ill. I'm sure they hate me, or they are punishing me or something; it's disgusting how I get sick so often.

A structured argument is a passage that contains a single conclusion that is presented as a logical consequence of reasons stated in one or more premises.

### **Example**

If I want a mobile phone, then I have to use my school loan when it comes. But if I use the school loan up on the phone, I will not be able to return my mother's money for the tuition. If I don't return my mother's money she will not pay for my tuition next year. I cannot afford to pay tuition next year unless my mother helps with the tuition. But I have to pay tuition next year. So I cannot buy a phone.

### **Identifying arguments in passages**

Arguments can be recognized sometimes—although not always— by the 'cue' words that introduces explicitly the premises or the conclusion. Often these cue words are implicit

Here are some words that indicate premises and conclusion of an argument. But remember that arguments sometimes do not include any of these words. You must read carefully to be a critical thinker.

Some premise indicator words are:

Because, in light of, since, given that, considering, from the fact that, if, provided, the research findings are, hence, therefore, consequently, it follows that, so, as a result, we can conclude that, clearly, then, thus.

### **Activity 4.1**

### **Identifying arguments in contrast with other types of discourse**

Decide for each of the following passages whether it contains:

□ an argument form (premises providing a good reason to believe the conclusion) or instead a narrative or report of events or instructions or an opinion expressed emotively or rhetorically

1. I simply don't understand what the administration thinks it is doing with these constant increases in school fees. Where is the money supposed to come from? Students are paying enough already. The University wants to squeeze us dry, while they, the fat cats, are sitting on lots of money they refuse to spend. We should call a boycott and refuse to pay anymore.
2. When the accident occurred there were no witnesses. Without witnesses you cannot claim insurance. Without insurance you have to pay for the repairs yourself. So I will have to pay for the repairs myself.
3. We went to the clinic and waited until four o'clock for the military officer. The military officer never came. So we went home with the sick child.
4. On Saturday, the military officer never comes to the barracks. He is busy at the hospital all day Saturday. So if you need to see a military officer, then do not go to the barracks on Saturday. Since I need a military officer and it is Saturday, I won't go to the barracks.
5. The politicians want votes. You can see they are corrupt. So don't trust any politician.
6. Either I took the book to the library or I've left it in my room. I can't find it anywhere in my room. So the library must have the book.
7. This formula milk sold 90,000 more cans this year to mothers than any other brand. So it must be the most nutritious brand available.

## Summary

The beginning of critical thinking is careful reading and scrupulous listening. We need to study sentences in relation to each other to appreciate when reasoning is well grounded. Sentences relate to each other in different orderly ways for different purposes.

In this section:

We studied the connection between statements in time, and discovered the category of narrative discourse. We studied the connection between statements that indicate a process of things to do, and discovered the category of instructive discourse.

We studied the connection between statements that support or provide a good reason for believing a conclusion, and discovered the category of argumentation.

## Assignment 3.1

Study your favourite daily newspaper for a week, or your favourite weekly over a series of three weeks. Watch in particular the commentary columns, the opinion articles, the letters to the editor, the editorials, and the advertisements.

1. Look for the following, and pick out good examples of the following flaws in declarative discourse:

- Vagueness of statements, Ambiguity in headlines, Rhetorical or polemical discourse to motivate belief in a point of view

2. Find an example of a narrative.

3. Recount a set of instructions

4. Record a metaphor or analogy that appears in place of an objective factual statement or a value judgment. Rewrite the intended meaning of the metaphor in plain declarative style.

### Assignment 3.2

Consider each of the following passages: it may be either a narrative which reports a sequence of events in order of their occurrence and may also comment upon these episodes by making empirical claims that can be established as true or false based on what is documented. Another possible type of passage gives instructions of things to do in sequential order, or a list of directives to follow to accomplish some desired effect. A third type of passage is one that exhibits polemical rhetoric which expresses a strong feeling or persuasively vents an opinion, a fourth type of passage provides a structured argument containing a single conclusion that follows logically from reasons given in one or more premises. For those passages containing an argument, decide if it is a good argument whose premises provide a good reason for believing the conclusion is true, or a bad argument where the premises fail to provide adequate evidence or a good reason for believing the conclusion is true.

1. Of the 15 Commonwealth Hall students who took part in the destructive mob action in September 2003, 12 were indicted for criminal behavior by the authorities and four were punished with suspension for two years, while others were expelled from school. More recently in March 2006, non registered students came to the Legon campus and carried on a rampage to express dissatisfaction at the election results for the SRC for the coming academic year. So again the police were called to come and patrol the campus in order to prevent further vandalism and related criminal activity. In all there have been more police interventions on the Legon campus in the last ten years than there have been in the previous forty years since the University was first established.

2. On a simplistic model of urban development that is widely accepted in the global arena, towns and cities grow big because they are centres of industrial productivity. But if all commercial development depended upon industrial manufacturing base, then Ghana would have to copy the European model of capital accumulation in order to increase its GDP. But both in ancient and modern times the records clearly indicate that building up a heavy machinery industrial base is not the only way to build up strong urban economies. For instance the geographer Jacob Songsore has observed that in Northern Ghana and the forest belt between the 8m and 15th centuries, settlements

and state structures developed in tight interdependence with long distance trade initiatives and commerce-related activities, to protect and control trans-Saharan trade from Cairo to Morocco. And in more modern times, India has increased its GDP rapidly through a service-oriented business sector responding to an already existing need in the electronic computer and telecommunication sectors, rather than manufacturing products which are then distributed by creating markets worldwide. So it is clear that there are many different ways for Sub-Saharan African nations to build up their economic prosperity; they do not need to copy the European industrial model.

3. Some of the hijackers who forced the planes into the World Trade Centre were known to be members of the al-Qaeda network. All of them were known formerly to have professed their faith in Islam. The same holds for the people who blew themselves up in order to cause havoc in London on the public buses and underground tube. So that just shows you that basically all Muslims have no respect for human life, their own or that of others and that their faith predisposes them to support terrorism.

4. I am sick and tired of hearing all this wahala from these so-called revolutionaries. All they do is say how they are going to make everything better. But what have they done except talk? In fact, all the criticism they put into the newspapers and on the radio does nothing more than run down the government. Where is their patriotism? Where is their sense of national pride? I wish someone would shut them up so we could move on in peace.

5. There is a big football match today and Kwame always watches the matches whenever he can. But this is the only day Kwame is able to do his laundry. So Kwame will either be watching the match or he must be doing his laundry. He is not doing his laundry; so you will find him watching the match.

6. All the students had their questionnaires filled out after the village survey and they were all ready to go home.

But they had to wait for the bus. They were arguing the whole time whether they should have taken public transport rather than rented the bus. After waiting half an hour the bus didn't come. So someone suggested hiring a taxi. After giving reasons for and against the taxi, they decided it would be too expensive because of the long distance. So then someone suggested calling the bus station where they rented the bus. But they could not make the call unless they could find a phone and they could not find a phone. Finally they located a police station where they could use the phone. It took an hour to get the phone number of the bus station. Finally the bus came along, but it was two and half hours late. The students were all arguing with the bus driver, because they wanted to get their money back and the driver was saying they had no right because he got them to the place on time. On the way home they wrote a letter explaining why they should be refunded half the money. Later the bus company refused; they claimed the bus had broken down and was delayed by servicing. The students decided to take another bus company the next time they planned a field trip. The following month the field trip was scheduled and the transport came and left with them on time.

7. Sexual infidelity is prevalent these days, sad to say. Even though people know it's wrong, they often have sex outside their marriage. No surveys have been conducted, but it is known to be

true that men with many wives are more likely to have sex with women outside marriage. It's very unsafe and irresponsible. Men just don't care about the women who care for them and love them, that is what it shows you—men are really selfish. Sexual infidelity is abhorrent in many respects, but the traditional priests and the church pastors do nothing about it. Some of the worst offenders are the pastors; everyone knows it. What should be done? Infidelity is truly a great blight on society

8. A cold (catarrh) or flu (influenza) is an infection caused either by a virus or by a bacterium. If the cold is caused by a virus then there is no cure for it, so you should take an analgesic to make you feel better, and antihistamine to dry up your nose. You can try some cough mixtures if you are coughing, to suppress the cough. A flu infection caused by a virus lasts no more than two weeks. If you are still sick after two weeks then the infection might be a bacterial infection, such as pneumonia. To treat it properly you need to go for tests to be sure what type of bacterial infection is causing your illness. To interpret the test results, you then need to see a doctor. Don't just go to a chemist. If one doesn't get rid of cold symptoms after two weeks, you should see a doctor.

9. In Ptolemy's time in the 9th century, it was believed that all the planets are perfect spheres, and can move only in perfect circles around the earth. When Mercury was discovered, it seemed to move forward and then reverse its direction for some months, and move forward again. This was known about Mercury even a thousand years ago. The Ptolemaic system explained it in terms of epicycles, or little perfect circles ('perihelion') that some planets were assumed to make as they proceeded around the Sun. In the mid 16th century, Kepler claimed that all the planets but Mercury could be predicted by using his laws of planetary motion. About 1939, we discovered nine planets in all. Not until the first decade of the 20th century, when Einstein's theory of relativity was tested could anyone predict the elliptical path of Mercury with accuracy. And in the last twenty years many more planets have been discovered. Since we put a telescope in outer space for the first time in 1995, and can see the galaxy much more clearly, it has been a matter of debate among astronomers exactly how many planets exist in our solar system. Unit Summary

In unit 3 you learned

- how to distinguish a verbal dispute and how it may be covering over a substantive disagreement
- what a metaphor is, and how to classify proverbial discourse, allegory and analogy for special treatment
- what the difference is between ambiguity and vagueness
- how to locate the source of vague discourse
- how to locate the ambiguous words that is the basis for equivocation
- how to recognise when a passage contains a set of premises supporting a conclusion

- how to distinguish a passage that contains an argument from a narrative, a set of instructions, or rhetorical polemic