

## Sentences, Statements and Arguments

As you learned from studying the uses of language, sentences can be used to express a variety of things. We will now center our attention on one use of language, the informative, and that which is expressed by it, statements.

### Sentences and Statements

A statement is defined as that which is expressible by a sentence and is either true or false. The criterion of being either true or false is one thing that served to identify the informative use of language. Questions, commands, performatives, and expressions of feeling are neither true nor false. Statements are logical entities; sentences are grammatical entities. Not all sentences express statements and some sentences may express more than one statement.

A statement is a more abstract entity than even a sentence type. It is not identical with the sentence used to express it. In this respect, a sentence is like a numeral and a statement is like a number. Each of the following can be used to express the same thing.

three  
3  
III

The English word "three," the Arabic numeral "3," and the Roman numeral "III" are all used to express the same number. The number, however, is not identical with any of these.

In a similar way, different sentences can be used to express the same statement. Consider the following pairs.

The original copy of Alice in Wonderland is in the British Museum.

In the British Museum is the original copy of Alice in Wonderland.

Columbus discovered America.

America was discovered by Columbus.

Black is the color of my true love's hair.

My true love has black hair.

Each pair of sentences can be used to express something that is either true or false. Both members of each pair express the same thing. Yet they are different sentence types. That one thing which is expressed by both members of the pair is a statement.

Not only can different sentences be used to express the same statement, but also

the same sentence can be used on different occasions to express different statements. Here is an example of how this can occur.

John: You are the best logic student.

Bill: You are the best logic student.

John and Bill have used the same sentence type, but they are not expressing the same statement in using the sentence. John is expressing the same statement as the sentence "Bill is the best logic student." Bill is expressing the same statement as the sentence, "John is the best logic student." The two sentences "Bill is the best logic student" and "John is the best logic student" are not the same sentence type and do not express the same statement.

### **Exercise 2.1**

Identify each of the following, which express statements.

1. What a lovely evening!
2. "What a lovely evening!" exclaimed Jan.
3. Is it true that logic students make better lovers?
4. This sentence expresses a statement.
5. This sentence does not express a statement.
6. The same statement can be both true and false.
7. Do questions express statements?
8. The sum of the interior angles of a triangle is 180 degrees.
9. Performatives are expressions that create social facts.
10. Take at least one course in logic.
11. The student's advisor told her, "Take at least one course in logic."
12. Think carefully about this sentence.
13. Did you think carefully about the previous sentence?
14. Three plus seven equals ten.
15.  $3 + 7 = 10$

### **Ambiguity**

All too frequently, the same occurrence of the same sentence could be used to express different statements. When a sentence can express more than one statement, and we cannot determine which statement the author of the sentence intended to express, the sentence is ambiguous.

Ambiguity can be semantical, referential or syntactical. Semantical ambiguity occurs when a word or phrase has more than one meaning. Referential ambiguity occurs when a noun or pronoun could refer to two or more different individuals, and context

does not allow us to determine which. Faulty reasoning due to semantical or referential ambiguity is equivocation. Syntactical ambiguity occurs when the structure of a sentence allows more than one interpretation of that sentence. Faulty reasoning due to syntactical ambiguity is called amphiboly.

The term "man" or "men" has been the source of considerable semantical ambiguity. It can mean the human race, or the male portion of the human race. The pronoun "he" suffers the same fate. Traditionally, it has been used to refer to common gender, though there is movement away from this usage. The following sentence is unambiguous.

John and Mary took the exam, but he failed.

This next sentence is ambiguous.

John and Bill took the exam, but he failed.

In the first example, the masculine pronoun clearly refers to John. In the second, its reference is ambiguous since it could refer to either John or Bill.

The following is an example of syntactical ambiguity.

There is a presentation on employment opportunities in the gym.

Due to the grammatical construction of the sentence, one cannot tell if the employment opportunities are in the gym, or the presentation is in the gym. The best way to resolve ambiguity is to ask the speaker or author to clarify their assertion. Unfortunately, this is not always possible. There may be no question and answer period after the speech. The speech may be on television. The author may be in Rhode Island, or even dead. Sometimes context will permit a clarification. In other cases, judgment simply must be reserved.

## **Exercise 2.2**

Which of the following sentences are ambiguous? If a sentence is ambiguous, rewrite it to eliminate the ambiguity.

1. John inspects cattle in the Department of Agriculture.
2. There is nothing odd about the number of the above sentence.
3. To be served, shirts must be worn.
4. The children fed the chickens grasshoppers hornworms and junebugs.
5. This is the last problem in this exercise.

## Arguments

In everyday English, an argument is a dispute or debate. In logic, the term has a more technical meaning. An argument is a set of at least two statements, one of which is the conclusion of the argument, and the rest of which are premises offered in support of the conclusion.

A dispute or debate may or may not involve the use of arguments in the logical sense. A dispute may be only a shouting match. It may involve the use or the threat of force. It often involves an appeal to authority. It may degenerate to name calling, or an appeal to the emotions and prejudices of an audience. These various moves sometimes settle the dispute in the sense that one of the parties will decide to quit. But only an argument in the logical sense can provide a satisfactory resolution to a dispute for a rational and inquiring person.

Neither physical force, nor psychological force, nor submission to authority advance truth. Though the use of argument does not always advance truth, it is the surest route we have, and the best way of avoiding error.

Because an argument is a set of statements, it is objective. It is not dependent upon the person who thought of it. Once expressed in speech, it can be repeated. Once written, it can be circulated to all. Feelings, intuitions, hunches, even revelations, lack that objective quality. Furthermore, there are certain characteristics of arguments that allow the public evaluations of them. Most of this book will be concerned with those characteristics.

## Recognizing Arguments

An argument must consist of at least two statements. One, and only one statement will be the conclusion. The rest of the statements will be premises of the argument. The expression of an argument will often contain indicator words that help identify the premises and conclusion. Some conclusion indicators are:

so  
therefore  
consequently  
as a result  
thus  
hence  
accordingly  
it follows that.

These terms tell us that what follows expresses a conclusion. The other statements in the argument must be premises.

There are also terms, which indicate premises. Some of these are:

since  
because

for  
in light of  
in view of  
as shown by.

Identifying the premises allows us to determine that the remaining statement in the argument is the conclusion.

Unfortunately, expressions of arguments do not always contain indicator words. In this case, we must rely on context and relations of support to identify premises and conclusion. If someone asserts:

There cannot be the serious unemployment in this country that the liberals proclaim. Today's classified section was full of help wanted ads. People just refuse to take the jobs that are available.

we can reconstruct the structure of the argument based on our knowledge of the context in which such an assertion would occur. That context would be a disagreement with a liberal concern with high unemployment. The conclusion is:

There cannot be the serious unemployment in this country that the liberals proclaim.

The premises are:

Today's classified section was full of help wanted ads.

People just refuse to take the jobs that are available.

We know from the debates we see on television and read in newspapers and magazines that American liberals see unemployment as a more serious problem than do American conservatives. We also know that conservatives would like to see people forced to take lower paying jobs by having the support services of the state removed and the power of unions reduced. This context helps us identify the conclusion.

Relation of support is subtler than context, but it does play a role in the analysis of this argument. The statement

Today's classified section was full of help wanted ads.

cannot be supported by either of the other two statements. Neither of them would provide any grounds for accepting it. But it might support either of the other two statements. Thus we identify it as a premise.

The second premise,

People just refuse to take the jobs that are available.

is intended to support the conclusion, but could also be supported by the first premise. If we were only given these two statements, the second premise would be identified as the conclusion. Identifying relations of support is difficult now, but as you learn more about the structure of arguments, it will become easier.

It is important to remember that the informative use of language is not limited to the expression of arguments. Description, explication, and narration are a few of the other uses. The following passage, for example, does not express an argument.

The Puritans were the first modern revolutionaries. They devoted themselves single-mindedly to their cause. They sacrificed the present for the future. They accepted an ethic, which they understood as transitional. Their goal was the transformation of human society and human nature.

The first sentence might well be used to express a conclusion. Indeed, we shouldn't accept it without support. In this case, however, it would be wrong to interpret it as expressing a conclusion. The rest of the statements expressed in the passage could support the claim that the Puritans were modern revolutionaries, but not the claim that they were the first modern revolutionaries. While the first statement is explicated by the subsequent statements, they do not provide support for it. The passage does not contain an argument.

Conditional statements should not be confused with arguments. A conditional statement is usually expressed with an "if...then" sentence.

If the bank is open, then I can withdraw some money.

The statement expressed by the above sentence may be used in an argument, either as premise or conclusion. It is however, only one statement. An argument must consist of at least two statements, a conclusion and at least one premise.

### **Exercise 2.3**

Determine whether the passage expresses an argument. If it does express an argument, identify the premises and conclusion.

1. John must be in the library. I've checked the dorm, the cafeteria, and the game room, and I know he doesn't have a class now.
2. As television viewing has increased, the reading ability of public school children has decreased. Therefore, television viewing contributes to reading problems.

3. If God is all good, he would not will evil. If he is all powerful, he would not permit evil. But there is evil. Therefore God is not all powerful, or he is not all good.
4. If the Republicans win the next election, there will be a recession, federal revenues will fall, and the deficit will grow. If the Democrats win the next election, there will be increased spending and the deficit will grow. Since either the Republicans or the Democrats will win the next election, the deficit will grow.
5. Because I failed to study, I didn't pass the exam.
6. Only if you study will you pass the exam.
7. Since you haven't studied, you will not pass the exam.
8. The black bass is one of the most popular game fish. It is a hard fighter, often unpredictable in its habits, and thrives in a variety of waters.
9. The black bass is one of the most popular game fish. Millions are spent on tackle and specially outfitted boats by fishermen in its pursuit. Those who are successful become sports heroes, with product endorsements and their own television shows.
10. The sides of the rectangle are 12 feet and 4 feet. Thus the area is 48 square feet.