THE ART ABOUT STATEMENT

THE DEFINITION OF STATEMENT

A statement is *speech signifying the true or the false*. A statement is not the only kind of sentence, but it is the only kind of sentence that signifies the true or the false. Questions, commands, prayers and urgings are sentences, but they do not signify the true or the false. We say true *or* false because the same statement cannot (at the same time) be *both* true and false. Some statements are always true (for example, *two is half of four*); some statements are always false (for example, *two is half of three*) and some statements are true at one time and false at another time (for example, *It is raining in Boston* or *I am standing)* Often we do not know whether a statement is true or false, but it cannot be both at the same time.

SIMPLE AND COMPOUND STATEMENTS

In a *simple* statement, one thing is affirmed or denied of another. For example: *man is an animal* or *man is not a stone*. A *compound* statement puts together two or more simple statements by something. The two most important compound statements (especially for reasoning) are the *if-then* (also called *hypothetical* or *conditional*) statement and the *either-or* (also called *disjunctive*) statement. For examples: *If you are a mother, then you are a woman* and *A number is either odd or even*.

As will be seen, *true* and *false* do not mean the same thing in a simple statement and in a compound statement. And they do not mean the same in an if-then statement and in an either-or statement.

THE DIVISION OF THE SIMPLE STATEMENT INTO ITS COMPOSING PARTS

The simple statement is composed of a *noun* and *verb*. Both are names as defined before, but the verb signifies *with time* and the noun *without time*. The verb is also a sign of something *said of* another. Thus, in the simple statement *man walks*, *man* is a noun since it signifies without time and *walks* is a verb since it signifies with time and is a sign of something said of another (in this case. *man)*.

We can also divide the simple statement into three composing parts by dividing the verb into a form of the verb *to be* and a *predicate*. (*Predicate* comes from the Latin word meaning *said of*) In this division, the noun is called

the *subject* of which the predicate is said or denied. In the statement *man is an animal*, *man* is the subject and *animal* is the predicate. In the statement *man is not a stone*, *man* is the subject and *stone* is the predicate. The third part, a form of the verb *to be*, with or without the sign of negation, is called the *copula*. In the statements just given, the copulas are *is* and *is not.*

THE DIVISION OF SIMPLE STATEMENT INTO ITS SPECIES

We can also divide simple statement into parts of which it is said, its species, which are *affirmation* and *negation*. Unlike the composing parts, these species are statements. In an affirmative statement, the predicate is said of its subject; for example, *man is an animal* where *animal* is said of *man*. In a negative statement, the predicate is denied of the subject; for example, *man is not a stone* where the predicate *stone* is denied of the subject *man*.

A PROPERTY OF THE SIMPLE STATEMENT

From the above divisions of the simple statement, we can see a property that belongs to every simple statement. Every simple statement has an opposite statement with the same subject and predicate (but a different copula). For every simple affirmative statement, there is an opposite negative statement with the same subject and predicate. To the affirmative statement *man is an animal*, there is the opposite negative statement with the same subject and predicate, *man is not an animal*. And for every simple negative statement, there is an opposite affirmative statement with the same subject and predicate. To the simple negative statement *man is not a stone*, there is the opposite affirmative statement *man is a stone* which has the same subject and predicate.

WHAT *TRUE* AND *FALSE* MEAN IN THE SIMPLE STATEMENT

Since a statement is speech signifying the true or the false, we should consider what *true* and *false* mean in the simple statement. Clearly, they do not mean the same as affirmative and negative. An affirmative statement may be true (for example, *man is an animal*) or false (for example, *man is a stone*). Likewise, a negative statement may be true (for example, *man is not a stone*) or false (for example, *man is not an animal*)

It is not hard to see from the above examples what true and false mean in the simple statement. If reason says that what is in things *is*, then reason is saying what is true. For example, man being an animal in reality, it is true to say that man *is* an animal. But if reason says that what is in things *is not*, then

reason is saying what is false. For example, if reason should say that man *is not* an animal.

Reason is also true when it says that what is not in things *is not.* For example, man not being a stone, it is true to say that man is not a stone. And reason is false if it says that what is not in things *is*. for example, if reason should say that man is a stone.

Thus reason is speaking the truth when it says that what-is-in-things *is* and that what-is-not-in-things *is not*. Truth is the conformity of what reason is saying with things.

And reason is speaking falsely when it says that what-is-in-things *is not* or that what-is-not-in-things *is*. Falsity involves a conflict or opposition between what reason says and what is in things. Truth is the agreement of what reasons says with things and falsity the disagreement of what reason say with things. It is clear then that the truth and falsity of what reason says is measured or determined by things.

Sometimes truth is said to be the *equality* of what reason says with things. When reason speaks truly, it says neither more nor less than what is in reality or things; it neither adds to, nor subtracts from reality. But when reason speaks falsely , it either adds to or subtracts from reality. When reason says that what-is-not-in-things is, it is adding to reality or saying more than the truth. When reason says that what-is-in-things is not, it is subtracting from reality or saying less than the truth.

The famous words in the courtroom when swearing in are based on these two ways of departing from the truth by either adding to or subtracting from it. When one swears to "tell the truth, the whole truth, and nothing but the truth", the second and third phrases are not just repeating or emphasizing the first. Rather they are there to exclude the two ways of departing from the truth in one's testimony. Swearing to tell "the whole truth" is meant to exclude subtracting from the truth or saying that what-is-in-things *is not*. And swearing to tell "nothing but the truth" is meant to exclude adding to the truth by saying that what-is-not-in-things *is*. For example, if only Paul and James were in the bar at nine o'clock and I know this, I would not be telling the whole truth by saying that Paul was there but James was not. I would be subtracting from the truth. I would be saying that what-was-in-things was not. But if I said that Paul and James and Thomas were there, I would be adding to the truth, saying that what-was-not-in-things was. And this is excluded by that part of the oath in which I have sworn to tell "nothing but the truth."

It can be seen from induction and the above definitions of true and false, that if an affirmative statement is true, the opposite negative statement (which negates what the other affirms) must be false; and if a negative statement is true, the opposite affirmative statement (which affirms what the former negates), must be false. If the statement *man is an animal* is true, the statement *man is not an animal* must be false. For if the former is true, it is saying that what-is *is*. Hence, the negative statement is saying that what-is *is not* which is clearly false. And if a negative statement *man is not a stone* is true, it is saying what-is-not *is not*. Hence, the opposite affirmative statement *man is a stone* must be false for it is saying what-is-not *is* which is clearly false.

We can also see from the definitions of true and false and the above that the same statement cannot be both true and false (at the same time). A statement must signify either the true or the false

CONTRADICTORY STATEMENTS

Contradictory statements are two simple statements with the same subject and predicate, one affirmative and one negative, which cannot both be true or both false (at the same time), but one must be true and the other false (at the same time). And this is independent of whether we know which is the true statement and which the false statement. The statements *the president is sitting* and *the president is not sitting* are seen to be contradictory even if we do not know which is true and which is false.

COMPOSING PARTS OF TWO COMPOUND STATEMENTS

The if-then compound statement is composed of two simple statements joined by *if* before the first and *then* before the second. The simple statement in the *if* part is called the *antecedent* and the simple statement in the then part is called the *consequent*. In the if-then statement *if four is a square number, then four is a composite number*, the antecedent is *four is a square number* and the consequent is *four is a composite number*.

The if-then statement is also called a *hypothetical* or *conditional* statement. However, this does not mean that it is an hypothesis. An if-then statement can be very certain as in the example just given.

The either-or statement (also called a *disjunctive statement)* is composed of two or more simple statements joined by *either* before the first and *or* before

the other(s). Usually both or all statements are not given fully or separately. Instead of saying *Either this number is odd or this number is even*, we say more briefly *This number is either odd or even*.

WHAT DO *TRUE* AND *FALSE* MEAN IN THE IF-THEN STATEMENT

Since a statement is speech signifying the true or the false, we must ask whether *true* and *false* mean the same here as in the simple statement. And we must ask in particular whether the truth or falsity of an if-then statement is determined by the truth or falsity of the simple statements that make it up.

True and *false* do not mean the same in the if-then statement as they do in the simple statement. *True* in an if-then statement means that the consequent (or simple statement in the *then* part) follows necessarily the antecedent (or simple statement in the *if* part). False means that the consequent does not follow necessarily the antecedent. For example, the if-then statement *If I am a man, then I am an animal* is true because my being an animal follows necessarily upon my being a man. But the if-then statement *If I am a man, then I am white* is false for being white has no necessary connection with being a man.

Sometimes one can make a true and a false if-then statement out of the same two simple statements by reversing the order. The if-then statement *If I am an animal, then I am a man*. is false. But if I put the antecedent in place of the consequent and vice-versa as above, the statement is true. But this is not always the case. The if-then statement made out of *I am a man* and *I am white* is false, no matter which is the antecedent and which the consequent.

The truth or falsity of an if-then statement cannot be determined by the truth or falsity of the simple statements of which it is composed. It is possible to make a true if-then statement out of two false simple statements. For example, the if-then statement *If man is a square, then man is a quadrilateral* is true even though it is composed of two false simple statements. And the if-then statement *If a square is equilateral, then a square is right-angled* is false even though the simple statements composing it are both true. This again brings out that *true* and *false* do not man the same in the simple statement and in the if-then or hypothetical statement.

WHAT DO *TRUE* AND *FALSE* MEAN IN THE EITHER-OR STATEMENT

Yet another meaning of *true* and *false* is found in the either-or or disjunctive statement. It depends upon whether the possibilities are or are not exhausted by the disjunction or division. Such a statement is true if the division or disjunction is complete or exhausts the possibilities. The disjunctive statement *Every number is either odd or even* is true because there is no other possibility. But an either-or statement is false if the division or disjunction does not complete or exhaust the possibilities. For example, the disjunctive statement *Every triangle is either equilateral or isosceles* is false since a possibility (being scalene) is left out.

It can be seen from the above that the truth of an either-or statement depends upon dividing well. And a bad division easily leads to a false either-or statement.

THE END OF REASON IS TO KNOW THE TRUTH OF A SIMPLE STATEMENT

Since reason wants to know the way things are or are not, its end is more to know the truth of a simple statement than of an if-then or either-or statement. For only a simple statement says the way things are or are not. But reason can use the truth of an if-then statement or of an either-or statement with a simple statement (or statements) to know the truth of another simple statement as shall be seen in the consideration of the syllogism. This is also a sign that *true* is not said without reason of the simple and compound statements.

OPPOSITION IN SIMPLE STATEMENTS WITH A UNIVERSAL SUBJECT

A further consideration of the opposition of simple statements is necessary because the statements used in reasoned out knowledge do not have singulars like *Socrates* for their subject, but universals like *man.* Hence, in affirming or denying, it is possible to do so universally or in particular. We can affirm universally, for example, that *Every man is good*, or in particular that *Some man is good*. Likewise, we can deny universally, for example, by saying that *No man is good,* or in particular that *Some man is not good*. But with a singular subject such as Socrates, we have only one affirmative and one negative statement with the same predicate: *Socrates is good* and *Socrates is not good*.

Reason wants to know especially what statements are opposed as contradictories. When there is a singular as subject, it is clear what is the contradictory. The contradictory of *Socrates is standing* is *Socrates is not standing.* Both of these cannot be true or both false, but one must be true and the other false, regardless of whether we know which is which. But when the subject is a universal (something said of many), which affirmative and which negative are contradictory? For example: Is the universal affirmative statement *Every man is standing* the contradictory of the universal negative statement *No man is standing* or of the particular negative statement *Some man is not standing*. And is the universal negative statement *No man is standing* the contradictory of the universal affirmative statement *Every man is standing* or of the particular affirmative statement *Some man is standing*. And one can ask which negative statement is the contradictory of the particular affirmative. And which affirmative statement is the contradictory of the particular negative.

When considering the opposition of these four statements in truth and falsity, the logician sometimes arranges them at the four corners of a square to facilitate a comparison of them. He places the universal affirmative at the upper left corner and the universal negative at the upper right corner. And in the corner under the universal affirmative, he places the particular affirmative. And in the corner under the universal negative, he places the particular negative. This is called the *square of opposition.* He then finds that the diagonals are contradictory.

The two universal statements can both be false. For example: *Every man is sitting* and *no man is sitting* are both false. And the two particular statements can both be true. For example: *Some man is sitting* and *Some man is not sitting* are both true. It should be known that the particular affirmative is true both when the universal affirmative is true and when the particular negative is true. *Some man is sitting* can be true whether the rest are or are not sitting. Likewise, the particular negative statement can be true when the universal negative is true and when the particular affirmative is also true. We may make a particular statement because we know some are and some are not, or because we don't know about the rest. Indeed the truth of the universal statement includes the truth of the particular, but the reverse is not so.

But the diagonals cannot both be true or both be false, but one must be true and the other false, regardless of whether we know which is the true and which the false. And if we know one to be true, we know the other diagonal to be false. And if we know one to be false, we know its diagonal to be true. Let us consider each pair of diagonals in the square of opposition; that is, the universal affirmative and the particular negative statements (with the same subject and predicate) and then the universal negative and particular affirmative (with the

same subject and predicate). If we understand what we are saying by these statements, it is obvious that both cannot be true or both false, but that one must be true and other false.

If *Every A is B* is true, then it must be false that *Some A is not B*. For *Every* is a sign of universality and admits no exception. If *Some A is not B* were true, if even one A is not a B, it would make false the statement *Every A is B* . Likewise, if it is false that *Every A is B* , there must be at least one A that is not a B so that *Some A is not B* is true. But it is not necessary, if *Every A is B* is false, that *No A is B* is true.

Likewise if *No A is B* is true, then it must be false that *Some A is B*. For *No* is a sign of universality and admits no exception. If *Some A is B* were true, if even one A is a B, it would make false the statement *No A is B* . Likewise, if it is false that *No A is B* , there must be at least one A that is not a B so that *Some A is B* is true. But it is not necessary, if *No A is B* is false, that *Every A is B* is true.

Thus, of statements with the same subject and predicate, the universal affirmative and the particular negative are contradictory, and also the universal negative and the particular affirmative are contradictory.

But the universal affirmative and the universal negative statements are not contradictory, Sometimes they are both false (although clearly both cannot be true). The universal affirmative and the universal negative are called contraries because of the four statements (with the same subject and predicate) they are the furthest apart. The man who says that *every man is bad* is further away from the man who says *no man is bad* than he is from the man who says *some men are bad and some men are not bad.* But what is important to see is that contraries are not necessarily opposed as true to false. Sometimes, they are both false. (This is similar to moral vices which are further apart from each other than they are from virtue, but the vices are not opposed to each other as the reasonable to the unreasonable.)