

## Logic 07 Reading - Terminological Rules for Categorical Syllogisms

\_\_\_\_\_ Introduction.

There are seven rules of validity for categorical syllogisms. Remember that a syllogism is said to be valid when the conclusion logically follows from the premises. These seven rules can be broken down into three categories: Terminological rules, Quantitative rules and Qualitative rules.

### Terminological Rules:

- I. There must be three and only three terms.
- II. The middle term must not occur in the conclusion.

### Quantitative Rules:

- III. If a term is distributed in the conclusion, then it must be distributed in the premises.
- IV. The middle term must be distributed at least once.

### Qualitative Rules:

- V. No conclusion can follow from two negative premises.
- VI. If the two premises are affirmative, the conclusion must also be affirmative .
- VII. If either premise is negative, the conclusion must be negative.

A syllogism must comply with all of these rules in order for it to be considered valid. If a syllogism violates even one of them, then its conclusion cannot be considered to logically follow from the premises. In this chapter, we will consider the first category of rules; that is, rules I and II. These two rules are considered terminological because they have specifically to do with the terms in syllogism.

### \_\_\_\_\_ **Rule I: There Must be Three and Only Three Terms.**

We said in a previous section that every syllogism must have a major term, a minor term and a middle term. Altogether, then, a syllogism must have three terms. If it has more or less than three terms, then it violates this rule.

This rule can be violated in one of two ways. First, there can be more than three clearly distinguishable terms. If this happens, we are said to have committed the Fallacy of Four Terms. Here is an example of this fallacy:

All mammals have hair.  
All horses have manes.  
Therefore, some mammals have hair.

If you look at the two statements that are premises in this argument, you can see that we can conclude nothing from them because they contain four terms altogether. None of these terms are connected together in any way. But we can take three of these terms and make a valid argument out of them:

All mammals have hair.  
All horses are mammals.  
Therefore, all horses have hair.

This argument complies with Rule I. It is valid because two of the terms, horse (the minor term) and hair (the major term), are properly connected together by a middle term, mammal. This was not the case with the first argument.

The second (and more common) way this rule can be violated is by the use of an ambiguous middle term. This is called the Fallacy of Equivocation. The Fallacy of Equivocation is harder to spot, since the error it involves is much more subtle.

Remember that in chapter 3, we said that two terms are equivocal when they are spelled and pronounced exactly alike but have entirely different and unrelated meanings. One example of an equivocal term was plane. The word plane can mean either a flying machine or a geometrical figure (in Geometry, a plane is a flat, even surface, sort of like a piece of paper when it is lying flat). When we use such a term in an argument in both its different meanings, we commit the Fallacy of Equivocation. For example, suppose we make the following argument:

All planes are two dimensional.  
All 747s are planes.  
Therefore, all 747s are two-dimensional.

In this syllogism, the middle term, plane, is used equivocally; that is, in two different senses. It is used in the first premise to mean the geometrical figure we call a plane. In the second premise, however, the term is used to mean a flying machine. We have, therefore, committed the Fallacy of Equivocation, since, although the two middle terms look the same, they are not really, and we are using more than three terms.

### **\_\_\_\_\_ Rule II: The Middle Term Must Not Occur in the Conclusion.**

Again, the middle term is the term that connects the two terms that appear in the conclusion: the major term and the minor term. If the middle term appears in the conclusion, then it would have to stand in the place of the minor or major term, meaning that they could not be connected together. Let's look at the following syllogism:

All plants are living things.  
All animals are living things.  
Therefore all living things are plants or animals.

Notice that the middle term appears in the conclusion as well as in both premises. This is an example of a syllogism that violates Rule 2.

\_\_\_\_\_ Summary. This chapter concerns the first two of the seven rules with which syllogisms must comply in order to be considered valid. These first two rules are called terminological rules.

Rule I says that there must be three and only three terms in the syllogism. This rule can be violated in two ways. First it is violated when there are more than three terms in the syllogism. This is called the Fallacy of Four Terms. It is also violated when the middle term is used equivocally. This is called the Fallacy of Equivocation. Rule II says that the middle term must not occur in the conclusion.