

Logic 2.01 Reading – Figure in Syllogisms

"Logic is the anatomy of thought."

-John Locke

Note: We are shifting to a different level, so our reading and exercise numbering system will change to reflect that. Consider the readings/exercises so far to be 1.01, 1.02, etc.

_____ **Introduction.** Now that we have mastered the rules of validity for categorical syllogisms, we turn to figures and moods.

Categorizing syllogisms according to figure and mood will deepen our understanding of the syllogism and give us a short cut in determining validity.

The *figure* of the syllogism can be defined as follows:

The figure of a syllogism is the disposition (or location) of terms in the premises.

The figure of a syllogism is determined by the position of the middle term. There are four figures in all.

_____ **Review of Terms.** In order to properly understand syllogistic figures, we must remember the terms in a syllogism and the letters that designate them. We must remember that the letter *P* designates the major term (which is the predicate of the conclusion). The letter *S* designates the minor term (which is the subject of the conclusion); and the letter *M* designates the middle term (which is the term that appears in both premises, but not in the conclusion).

We must also remember that the premise that contains the major term (which we call the major premise) always comes first. Thus, a typical syllogism might look like this:

All M is P
All S is M
Therefore, all S is P

The location of M (the middle term) in each premise will tell us what figure the syllogism is in.

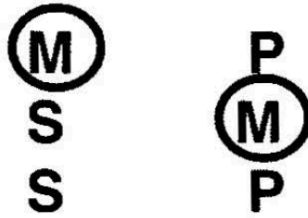
_____ **The First Figure.** In a syllogism of the First Figure, the middle term is the subject in the major premise and the predicate in the minor premise. We call this figure, *sub-prae*, which is short for *subjectum-praedicatum*, which is Latin for subject-predicate-the subject being the place of the middle term in the major premise and predicate being the place of the middle term in the minor premise.

An example of a *sub-prae* , or *First Figure* syllogism, would be:

All human beings^M are mortal^P
All boys^S are human beings^M
Therefore, all boys^S are mortal^P

Sub-prae _____

Sub-prae_____



You can see that the middle term is the subject in the major premise and the predicate in the minor premise. Therefore, it is *sub-prae*.

_____ **The Second Figure.** In a syllogism of the *Second Figure*, the middle term is the predicate in the major premise and the predicate in the minor premise.

We term this figure *prae-prae*, which is short for *praedicatum-praedicatum*, which is Latin for *predicate-predicate*, the predicate being the place of the middle term in both premises.

An example of a *prae-prae*, or *Second Figure* syllogism, would be

All men^P are mortal^M
No angels^S are mortal^M
Therefore, no angels^S are men^P

Prae-prae_____



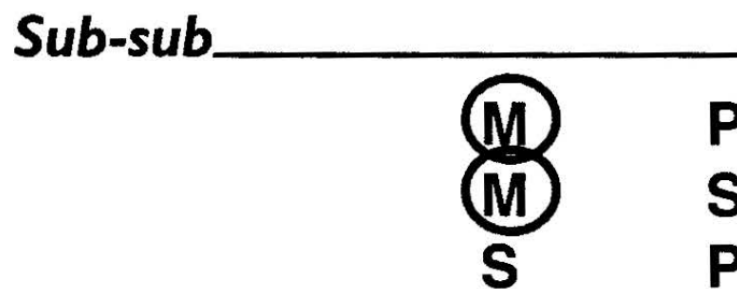
You can see that the middle term is the predicate in both the major and minor premises of this argument. Therefore, this syllogism is *prae-prae*.

_____ **The Third Figure.** In a syllogism of the *Third Figure*, the middle term is the subject in the major premise and also the subject in the minor premise:

We term this figure *sub-sub*, which is short for *subjectum-subjectum*, the subject being the place of the middle term in both premises.

An example of a *sub-sub*, or *Third Figure* syllogism would be:

All human beings^M are mortal^P
Some human beings^M are boys^S
Therefore, some boys^S are mortal^P



Here the middle term is the subject in both the major and minor premises of the argument. Therefore, this syllogism is *sub-sub*.

_____ **The Fourth Figure (Indirect First).** There is also what some have called a Fourth Figure. However, Fourth Figure syllogisms are actually just another form of the First. They are what we will call the *Indirect First*.

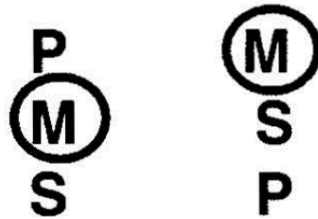
In a *Fourth Figure* syllogism, the middle term is the predicate in the major premise and the subject in the minor premise. In other words, a *prae-sub*. We say it is not a figure in and of itself but only a form of the First because the only difference between it and the First is in the grammar of the syllogism; the arrangement of the words only makes it look different, but logically it is the same.

An example of the *Fourth Figure* would be:

All Romans^P are men^M
All men^M are mortals^S
Therefore, some mortals^S are Romans^P

As you can see, the middle term (*men*) is the predicate in the major premise and the subject in the minor premise.

Prae-sub



This Fourth Figure is sometimes called the **Galenic** figure because it was Claudius Galen, who lived from 131 A. D. to about 200 A D., who first considered that it was a separate figure. Galen was considered the chief authority on medicine for over a thousand years. But while Galen and many modern logicians think the Fourth Figure is distinct from the First, Aristotle and all the rest of the ancient logicians thought it was only another form of the First. We will side with the ancients and concentrate primarily on the first three figures. However, we do encounter syllogisms in this form, so we need to be prepared to handle them.

_____ **How to Remember the Figures.** There are many Latin sayings that logicians in the Middle Ages invented to help us to remember certain things in logic. The Latin saying that helps us to remember figures goes like this:

Sub-prae prima, bis prae secunda, tertia sub bis.

It means, ***Sub-prae first, prae twice second, sub twice third.***

In other words, ***sub-prae*** is the First Figure, ***prae-prae*** (prae twice) is the Second, and ***sub-sub*** (sub twice) is the Third. By memorizing this saying, you will be able to remember where the middle term is in each of the three figures.

Another way to memorize them is to think about the illustrations:

Figure 1	Figure 2	Figure 3	Figure 4
M P	P M	M P	P M
S M	S M	M S	M S
S P	S P	S P	S P

Think PATTERNS.

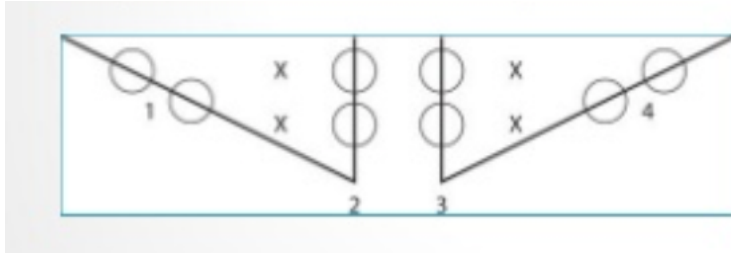
First Figure is upper left/lower right.

Second figure is right/right.

Third figure is left/left.

Fourth figure is lower left/upper right.

Simple.



_____ **Summary.** This chapter concerns the figure of syllogisms.

The **figure** of a syllogism is defined as the **disposition of terms in the premises**. The terms in a syllogism can be arranged in one of three (some would say four) different ways. We identify the figures according to the location of the middle term.

A syllogism in which the middle term is the subject in the major premise and the predicate in the minor premise is called a **sub-prae**, or First Figure syllogism. A syllogism in which the middle term is the predicate in the major premise and the predicate in the minor premise is called a **prae-prae**, or **Second Figure** syllogism. A syllogism in which the middle term is the subject in the major premise and the subject in the minor premise is called a **sub-sub**, or **Third Figure** syllogism.

There is also an **Indirect First Figure**, which some logicians have considered to be another figure altogether—a **Fourth Figure** syllogism. Its middle term appears in the predicate of the major premise and in the subject of the minor premise, making it a **prae-sub**. But it only looks like a different figure, and is really just a form of the First.