

THE PRINCIPLE OF THE DIVISION INTO FOUR FIGURES IN TRADITIONAL LOGIC

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The purpose of this note is to show that the traditional account of the division of syllogisms into four figures confuses two different principles which can be used to that purpose, and which give different results. Thus, it is either mistaken or redundant. According to the traditional account of Aristotle's syllogistic, syllogisms are divided into four figures according to the position of the middle term in the premisses. We read in Cohen and Nagel (rearranging the material a little bit):¹

The position of the middle term determines the *figure* of the syllogism, and on the basis of this distinction there are four possible figures. . . . the middle term is subject of the major premiss and predicate of the minor . . .

$$\begin{array}{r} M - P \\ S - M \\ \hline \therefore S - P \end{array} \quad \text{First Figure}$$

. . . the middle term is predicate of both premisses . . .

$$\begin{array}{r} P - M \\ S - M \\ \hline \therefore S - P \end{array} \quad \text{Second Figure}$$

. . . the middle term is the subject of both premisses . . .

$$\begin{array}{r} M - P \\ M - S \\ \hline \therefore S - P \end{array} \quad \text{Third Figure}$$

. . . the middle term is the predicate of the major premiss and the subject of the minor . . .

$$\begin{array}{r} P - M \\ M - S \\ \hline \therefore S - P \end{array} \quad \text{Fourth Figure}$$

The same account is found in Prior:

The 'figure' of a syllogism is determined by the way the middle term functions in the premisses. In the first figure, . . . , the middle term is subject of the major premiss and predicate of the minor; in the second, predicate of both; in the third, subject of both; and in the fourth, predicate of the major and subject of the minor.²

In both of the above accounts, and in many others, the principle of the distinction of syllogisms into four figures is taken to be the position of the middle term in the premisses. But it is not *really* the position of the middle term that gives us four figures. For the above account makes reference to the major and minor premiss. Since the major premiss, according to the traditional account of the syllogism, is that which contains the major term, and the minor premiss is that which contains the minor term, the principle of the distinction of syllogism into four figures presupposes the distinction between major term and minor term. But if we already have this distinction, then it is not true to say that the distinction into four figures is due to the position of the middle term in the premisses, but we must say that the distinction is due to the position of the middle term in the premisses which have already been differentiated into major and minor. But if this (the differentiation) is taken into account, then reference to the position of the middle term is no longer necessary. For we can get four figures by distinguishing between major term and minor term only. If we do this, as Rescher writes, four possible syllogistic figures result:³

	The predicate of the conclusion is the predicate of its (i.e., the major) premiss	The subject of the conclusion is the subject of its (i.e., the minor) premiss
(1)	Yes	Yes
(2)	Yes	No
(3)	No	Yes
(4)	No	No

Thus, the traditional account, strictly speaking, is mistaken, and if it is not taken in a strict sense, it is redundant. It is mistaken, since the distinction on the basis of the position of the middle term in the premisses, without any reference to their differentiation, gives only three figures, as Rescher writes:⁴

- (1) The middle term is subject in one premiss and predicate in the other.
- (2) The middle term is predicate of both premisses.
- (3) The middle term is subject in both premisses.

On the other hand, its redundancy, as we have seen, is due to the fact that basically it is the reference to the major and minor premiss and thus to the major and minor term that gives four possible figures. But this redundancy, although useful for pedagogic purposes, is not without dangers. For one might say, as Łukasiewicz does say, the following:⁵

The position of the middle term as subject or predicate of the premisses is the principle by which Aristotle divides the syllogistic moods into figures. Aristotle says

explicitly that we shall recognize the figure by the position of the middle term. (*An. Pr. I*, 32; 47b13). In the first figure the middle term is the subject of the major term and the predicate of the minor term, in the second figure it is the predicate, and in the last figure the subject, of both other terms. Aristotle, however, is mistaken when he says that every syllogism must be in one of these three figures. There is a fourth possibility, viz. that the middle term is the predicate of the major term and the subject of the minor term. Moods of this kind are now spoken of as belonging to the fourth figure.

This account charges Aristotle with the mistake of not recognizing the fourth figure as a genuine possibility, and we would charge Aristotle as confusing two different principles for distinguishing the moods of the syllogism into figures, which principles do give different results. But Łukasiewicz' account presupposes that Aristotle in his division of the various moods into figures makes reference to the conclusion, since this reference is needed for the distinction of major and minor premiss in terms of the distinction of major and minor term. But no such reference to the conclusion, as far as I know, is found in the Aristotelian texts. Aristotle did not make a mistake in not seeing the possibility of the fourth figure, for there is no such possibility if the distinction into figures is due solely to the position of the middle term in the undifferentiated premisses.

NOTES

1. Cohen, M. R. and E. Nagel, *An Introduction to Logic and Scientific Method*, Harcourt, Brace & World, Inc., New York (1936), p. 82.
2. Prior, A. N., *Formal Logic*, 2nd Ed., Clarendon Press, Oxford (1962), p. 111.
3. Rescher, N., *Galen and the Syllogism*, University of Pittsburgh Press, Pittsburgh (1966), p. 24.
4. *Ibid.*, p. 25.
5. Łukasiewicz, J., *Aristotle's Syllogistic*, 2nd Ed., Clarendon Press, Oxford (1959), p. 23.

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