

SQUARES OF OPPOSITION: COMPARISONS BETWEEN SYLLOGISTIC AND PROPOSITIONAL LOGIC

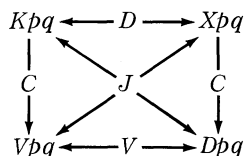
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It has been pointed out, for example by Bocheński,¹ that the principles of propositional logic now known as DeMorgan's Laws bear a certain resemblance to the laws depicted in the traditional Square of Opposition. The analogy, however, is not as perfect as it could be. The aim of this paper is to explore some of the consequences of seeking a more exact comparison between syllogistic and propositional logic.

The propositional operator K (conjunction) may be defined as follows: $K11 = 1$, $K10 = 0$, $K01 = 0$, $K00 = 0$. We may therefore regard the resulting values, 1000, as a satisfactory definition of K . Eight further operators will be defined in the same way:

$$\begin{array}{ll} B = 1101 & L = 0100 \\ C = 1011 & M = 0010 \\ D = 0111 & V = 1110 \\ J = 0110 & X = 0001 \end{array}$$

With the exception of V (non-exclusive disjunction), then, these signs are used with the sense assigned to them by Łukasiewicz. Using this notation, the square that Bocheński and others refer to has the following form:



The traditional square of opposition concerns the relations between four forms of "categorical" proposition: Aab ("All a 's are b 's"), Eab ("No a 's are b 's"), Iab ("Some a 's are b 's") and Oab ("Some a 's are not b 's"). These four forms are arranged in a square like the one given above:

1. J. M. Bocheński, *A Précis of Mathematical Logic*, Holland (1959), p. 14.