

## Categorical syllogisms on Heyting algebras

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In this work, our aim is to construct a system, which is an Heyting algebra, for examining categorical syllogisms. For this aim, we define categorical syllogisms via diagrammatic method, which gives us a suitable treatment to logical reasoning with Carolls diagrams, for representations of the fundamental Aristotelian categorical propositions and show that they are closed under the syllogistic feature of inference which is the deletion of middle term. Thus, it is implemented to let the formalism comprise simultaneously bilateral and trilateral diagrammatical appearance and an uncomplicated algorithmic nature.

In this regard, we represent the quantitative relations between syllogisms terms by means of bilateral and trilateral diagrams. Finally, we examine valid forms of syllogisms using algebraic methods, and we construct an Heyting algebra for categorical syllogisms by using sets.

### REFERENCES

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