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## Why are the Calculi of Logic and Arithmetic Applicable to Reality ?

*Morimasa Takano*

I approached the applicability of logic and arithmetic focussing upon the domain to be applied.

Each logical formula and each arithmetic equation, on one hand are the representations of the rules our language functions possess, on the other hand describe the world as object language. But we cannot say the domain of a logical formula or an arithmetic equation as descriptive language independently of it as a rule. It is not that reality is logical or arithmetical, but through our language we approach and describe reality and through an interanimation between our approach and reality our language develops.

Counting something we classify and measure such objects. Measurement theory is incorporated in our other theories. However, on account of the generality of logic and arithmetic as rules, other theories compose the fact by means of their models, for example, physics so organizes physical theory as to make concrete physical facts by means of mathematical models.

Every theory, including logic and arithmetic, develops in the form of the restriction of the domain to be applied.