

Quantification Theory

Founder Gottlob Frege (1848-1925)

All humans are mortal $(x) (Hx \supset Mx)$

Socrates is human Hs

\therefore Socrates is mortal. $\therefore Ms$

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1. Socrates is mortal
 2. Socrates is female
 3. Socrates is alive
 4. Socrates is beautiful

1 & 3 - True / 2 & 4 - False

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1. Aristotle is human.
 2. Calcutta is human.
 3. Descartes is human
 4. Berhampore is human

1 & 3 - True / 2 & 4 - False

In order to express an individual \rightarrow small letters

Socrates - s

Aristotle - a

Descartes - d

on the other hand, as symbols of the predicates we will use capital letters

Being human - H

Being mortal - M

Being wise - W

Socrates is human \Leftarrow

\downarrow

Hs
Aristotle is human $\rightarrow Ha$

Ram is human $\rightarrow Hr$

For expressing the attribute 'being human' in respect of my individual

Hx or $H(x)$

$x \rightarrow$ individual variable
(place marker)

$a, b, c, d \rightarrow$ individual constant

$Ha, Hb, Hc, Hd \rightarrow$ singular propositions

These are true or false.

$Hx \rightarrow$ Neither true nor false.

\downarrow

is not a proposition, it is a propositional function

Ha , Hb , Hc are substitution instances of the propositional function Hx

Everything is mortal $\rightarrow (x) (Mx)$

Something is beautiful $\rightarrow (\exists x) (Bx)$

\downarrow

There are not singular propositions

But: General propositions

Traditional Subject-predicate propositions

A - All humans are mortal $\rightarrow (x) (Hx \supset Mx)$

E - No humans are mortal $\rightarrow (x) (Hx \supset \sim Mx)$

I - Some humans are mortal $\rightarrow (\exists x) (Hx \cdot Mx)$

O - Some humans are not mortal

$(\exists x) (Hx \cdot \sim Mx)$