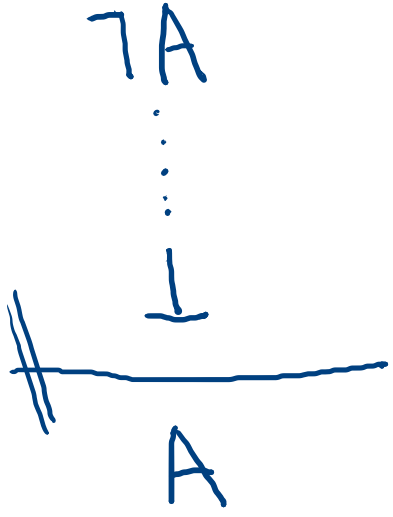
R.A.A.



L.E.M.

$[A \vee \neg A]$

$[A \leftrightarrow \neg\neg A]$

$(A \vee \neg A) \leftrightarrow (A \leftrightarrow \neg\neg A)$

First-order Logic

Predicates

individual { variables / constants

quantifiers $\forall$ - universal

$\exists$ - existential

free variable

$P(x)$ - properties

$R(x, y)$ - relatios

$x > y$

π 3

( ) $P x$
ill-formulas]

$P(x)$ - open formulas

$P(\pi)$ - closed

x is bound variable

$\forall x . P(x)$

$\exists x . P(x)$

Semantics:

domain

$\forall x \exists y . R(x, y)$ | $x > y$

$\mathbb{Z}$ $\mathbb{Q}^+$ $\mathbb{N}$ 1, 2

$\boxed{\forall \exists}$

$x = y$

$\pi = 3,1415\ldots\ldots$