

Hilbert's formalization: 1920's

- ① Every (math) proposition is written in formal language.
- ② The system is complete: every prop can be proven to be T or F.
- ③ The system is consistent: any prop cannot be proved to be T and F.
- ④ completeness & consistency should be proved using

"finitary" method



$\forall x$   
 $\exists x$   
 $P(x)$  only allow to quantify variable.

① FOPC, First order predicate calculus

② Principia Mathematica,  $\rightarrow$  Induction principle.

PM

1929 Gödel  $\therefore$  FOPC is complete.

