

Kurt Friedrich Gödel 1906-1978

Austria USA

Incompleteness theorems:

- 1. No consistent system of axioms whose theorems can be listed by an effective procedure (i.e., an algorithm) is capable of proving all truths about the arithmetic of natural numbers. For any such consistent formal system, there will always be statements about natural numbers that are true, but that are unprovable within the system.
- 2. an extension of the first, shows that the system cannot demonstrate its own consistency.

Mathematical logics



Completeness theorem

if a formula is logically valid then there is a finite deduction (a formal proof) of the formula.



Combining the theorems

Every consistent system describing integer numbers can be interpreted in various models, some different then the commonly accepted. Indescisive claims can be true in some models but false in others.