

# Mathematics are not complete

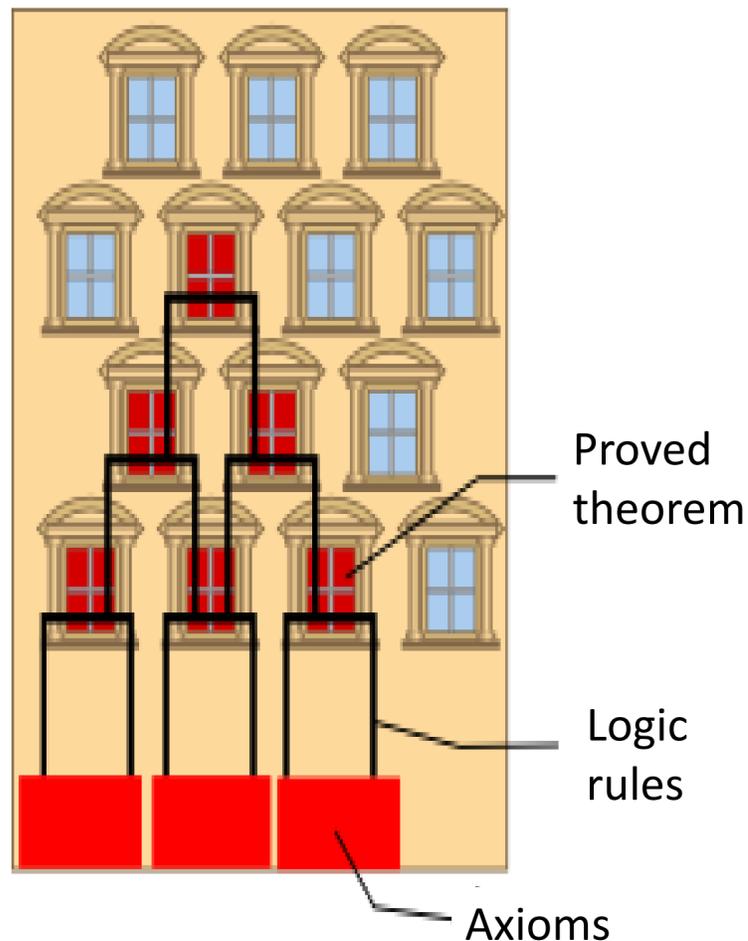
Or the first Gödel theorem

## Introduction

Historically mathematics were usually studied with philosophy to find the truth. Mathematics in contrast to philosophy seem irrefutable.

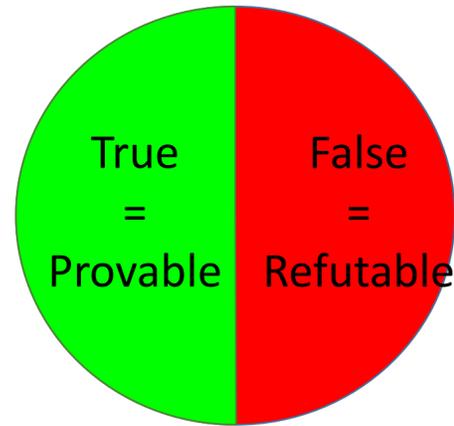
What is the truth in maths and every truth is it provable?

## I. How maths are built?



## II. Difference between true and provable

### a) Definition

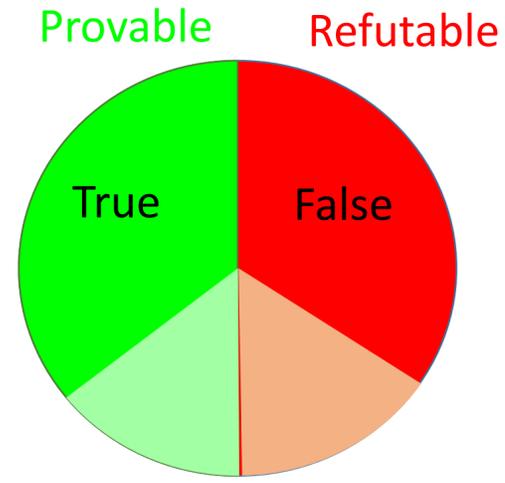


Complete

I want to find a complete axiomatic system



David Hilbert  
1862-1943



Incomplete

Complete -> every window is attainable

Incomplete -> there is a window unattainable

### b) Parallel with justice

Mr Theorem is accused to be false. The judge (=a mathematician) look at the fact.

In this case:

No evidence to charge him (=say he's false)



No evidence to discharge him (=say he's true)



## III. Incoherence

Incoherent axioms system= it exists a theorem provable and refutable

## IV. First theorem



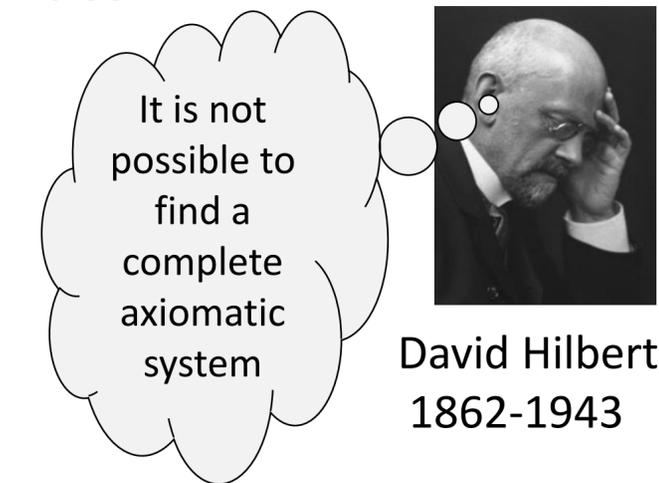
An axioms system allowing arithmetic, is incomplete or incoherent.

Kurt Gödel 1906-1978

Simplified idea of proof:

Create a theorem called G

**G is provable if and only if G is false**



David Hilbert  
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