

Gödel's incompleteness theorem, Turing theorem and the proof of Gödel theorem from Turing theorem.

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Summary

I presented Gödel's incompleteness theorem [1], Turing theorem [2] (both with proof) and the proof of Gödel theorem from Turing theorem [3].

These two theorems are very important results in mathematics, and moreover they make us think about interesting philosophical matters.

Gödel theorem, which gave the decisive blow to the formalism in mathematics, states that any consistent formal system is not complete, and so it tells us that human mind is radically different from calculators and human mathematical thinking is not deterministic. This theorem can be proved directly or starting from Turing theorem, which states that a calculator cannot solve and will never be able to solve general classes of mathematical problems. A consequence following from this result (as it is shown in Denis's talk) is that man will never be able to solve all mathematical problems, as there will always be other mathematical questions still unsolved, therefore a human mind will never completely contain Mathematics.

Using Shakespeare's words:

“There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy” (Hamlet, Act I, Scene V)

References

[1] Juleon M. Schins (2004) *Empirical Evidence for the Non-Material Nature of Consciousness*.

[2] Alfred Driessen, Antoine Suárez (1997) *Mathematical Undecidability, Quantum Nonlocality and the Question of the Existence of God*.

[3] Roger Penrose(1989) *The Emperor's New Mind*.

Biography

Rocco Tarchini is studying Chemical Engineering at the University of Naples Federico II.