

First Incompleteness Theorem reproven

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Demonstrated in alternative way, that the First Theorem of Gödel is true, and holds not only for some special mathematical problems, but in general.

Introduction: <https://youtu.be/O4ndIDcDSGc>

My contribution:

Suppose Dr. Gödel is wrong. In such case the probability to find [given unlimited research time and resources] the first way to prove the Riemann Hypothesis is perfect 100%. After that somebody will look for the second way to prove Riemann Hypothesis, like there are some people today, who look for "one page proof" of Fermat's Last Theorem [<https://doi.org/10.2178/bsl/1286284558>]. But because the number of ways to prove something is limited [surely, one can imagine infinite non-equivalent ways to prove the Pythagorean theorem during the infinite long development of science, but, there is non-vanishing probability, that there are or will be some theorems or hypotheses, which will never have infinite many proofs], then the probability to find the second proof of Riemann Hypothesis is less than 100%. But because the second way of proving Riemann Hypothesis could have been the first instead of the second (with the probability less than 100%), then it is wrong to assign to every first proof the perfect 100% probability. Therefore, the Dr. Gödel must be right.

Evidence: in 2020AD there are several ways to prove the Pythagorean Theorem, but only one way to prove the Fermat's Last theorem. Theorems with infinite ways of proving are not known yet.

Topic of Axioms

An axiom is defined in its historic origin as undecidable thing, but which is obvious and natural and, thus, comes even to skeptic's mind with no doubt, e.g., „I think, therefore I am“ (Descartes).

There is at least one historic case [I lost the reference], that a hypothesis, which was long time being tested to be true (tested in numerical way), became one day wrong.

From this one can conclude, what even if the Riemann Hypothesis is undecidable (can neither be proven nor disproven), it can not be called a new axiom. However, the idea to add Riemann Hypothesis as axiom is considered in

[arXiv:math/0306042](https://arxiv.org/abs/math/0306042)

Thus, the number of axioms in any theory stays limited: the undecidable things are not added as axioms [in my personal vision of Science], but rather they remain hypothesis-es, which can serve us as assumptions.

Application to Astrobiology

Same line of reasoning could tell us, that even having perfect conditions for life on an Earth-like planet, one does not have perfect 100% probability of abiogenesis.