From the Recursive Definition of Refutability to the Invalidity of Gödel's 1931 Incompleteness

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Abstract : According to Gödel's first incompleteness argument it is possible to construct a formally undecidable proposition in Principia mathematica, a statement that, although true, turns out to be neither provable nor refutable for the system, making therefore incomplete any formal system suitable for the arithmetic of integers. Its features and limitation effects are today widespread basics throughout whole scientific thought. This article brings Gödel's achievement into question by the definition of the refutability predicate as a number-theoretical statement. We develop proof of invalidity of Theorem VI in Gödel's 1931, the so-called Gödel's first incompleteness theorem, in two steps: defining refutability within the same recursive status as provability and showing that as a consequence propositions (15) and (16), derived from definition 8.1 in Gödel's 1931, are false and unacceptable for the system. The achievement of their falsity blocks the derivation of Theorem VI, which turns out to be therefore invalid, together with all the depending theorems. This article opens up thus new perspectives for mathematical research and for the overall scientific reasoning.
Keywords : Gödel numbering, incompleteness, provability predicate, refutability predicate
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