

- ▶ MATTIAS GRANBERG OLSSON, *A model-theoretic proof of Gödel's theorem: Kripke's notion of fulfilment*.

Department of Philosophy, Linguistics and Theory of Science, University of Gothenburg, PO Box 200 SE405 30 Göteborg, Sweden.

E-mail: mattias.granberg.olsson@gu.se.

We present a proof of Gödel's Incompleteness Theorem based on the notion of fulfilment, which is originally due to Saul Kripke and subsequently developed and presented by Joseph Quinsey [2]. We thus introduce the concept of a formula being initial-fulfilled by a sequence of numbers, which is an approximation of the formula being true. This notion is subsequently formalised in the theory $\text{I}\Sigma_1$ and, given a consistent, recursively axiomatisable, Σ_2 -sound extension T of PA, used to construct a sentence we will show to be independent of T . The proof of the latter is by first showing that the sentence is true in the standard model and then using a fulfilling sequence to construct a model of T where it is false.

The results are part of the author's MSc thesis [1].

[1] MATTIAS GRANBERG OLSSON, *A Model-Theoretic Proof of Gödel's Theorem: Kripke's Notion of Fulfilment*, MSc thesis, Självständiga arbeten i matematik 2017:3, Department of Mathematics, Stockholm University, 2017.

[2] JOSEPH EMERSON QUINSEY, *Some Problems in Logic*, PhD thesis, St Catherine's College, Oxford, 1980.