

# The universal algorithm and the universal finite set

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## Abstract

The universal algorithm is a Turing machine program  $e$  that can in principle enumerate any finite sequence of numbers, if run in the right model of PA, and furthermore, can always enumerate any desired extension of that sequence in a suitable end-extension of that model. The universal finite set is a  $\Sigma_2$  definition in set theory that can in principle define any finite set, in the right model of set theory, and can always define any desired finite extension of that set in a suitable top-extension of that model. I shall give an account of both results and describe applications to the model theory of arithmetic and set theory.