
Halt-no-Input

A reduction proof is a style of proof common in computer science. It is often used to show the equivalence (or non-equivalence) of two classes of algorithms. Do not confuse reduction-style proofs with the “reduction” steps in a lambda calculus proof; these are different ideas.

Prove that the Halt-no-Input problem is undecidable.

Halt-no-Input problem: given a program P that requires no input, does P halt?

Form of Expected Answer. Your answer should be in the form of a reducer (an algorithm). Write your answer (code) in the language of your choice.

Hint. Be careful to pay attention to the direction of the reduction. `Halt` should make an appearance in your proof. On which side of the reduction does it appear?