

CPSC 351 — Tutorial Exercise #11

An Additional Practice Problem

About This Problem

This problem will not be discussed during the tutorial, and solutions for this problem will not be made available. It can be used as a “practice” problem that can help you practice skills considered in the lecture presentation for Lecture #11, or in Tutorial Exercise #11.

Practice Problem

1. Now that you have been introduced to both *multi-tape Turing machines* and *single-tape Turing machines that have a two-way infinite tape*, it should not be hard to see how a *multi-tape Turing machine with two-way infinite tapes* would be defined.

After studying the simulations that have been presented so far, sketch a proof that the sets of Turing-recognizable languages and Turing-decidable languages would not be changed if they were defined using multi-tape Turing machines with two-way infinite tapes.