

COSC 341 – Tutorial 4

1. Give a recursive definition of the set B of unlabelled complete binary trees.
2. Show that the power set $\mathcal{P}(\mathbb{N})$ of \mathbb{N} is uncountable.
3. Show that, for any set A , $|A| < |\mathcal{P}(A)|$.
4. Design a finite automaton on the alphabet $\{a, b\}$ that accepts:
 - (a) all words starting with ab
 - (b) all words containing the substring bb

Homework

1. Design a finite automaton on the alphabet $\{a, b\}$ that accepts:
 - (a) all words containing exactly two a 's
 - (b) all words of even length
 - (c) all words consisting of an even number of a 's and an even number of b 's
2. Give a simple recursive definition of the language **Eq** consisting of strings over $\{a, b\}$ which have an equal number of a 's and b 's.