

Problem Session 1

The problems below are a rough indication of the material to be covered in the session. The amount of time spent on each topic will depend on the needs of those attending. For discussion of solutions, attend the session or talk to course personnel in office hours.

1. [**Proof by induction**] Prove that $(uv)^R = v^R u^R$ for any strings u and v .
2. [**Construction of a DFA**] Create a DFA for the set of strings over $\{a, b\}$ in which each a is immediately preceded by a b .
3. [**Construction of an ϵ -NFA**] Create an ϵ -NFA for the set of strings over $\{a, b\}$ in which either the second-to-last symbol is an a or the third-to-last symbol is a b .