

CS F364

Design & Analysis of Algorithms

04-02-2016

DYNAMIC PROGRAMMING

Graph Problems:

- **Converting DFAs to REs**

CONVERSION OF A DETERMINISTIC FINITE AUTOMATON TO THE CORRESPONDING REGULAR EXPRESSION

- A DFA is a labeled graph: (labels are strings)
 - Compute path labels by accumulating regular expressions instead of weights:
 - Labels (i.e. strings) on transitions (i.e. edges) are concatenated along a path
 - Multiple paths are merged by a union (of regular expressions)
 - Cycles are Kleene Closures (of the regular expression over the path constituting the cycle).
 - Compute paths from the start state to all the final states.
- Exercise: *Formulate the recurrence and write the DP algorithm.*