Nondeterministic Finite Automata - Lecture 3

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Theorem

The class of regular languages is closed under the *concatenation* operation

Proof Sketch (first attempt)

Definition - Nondeterministic Finite Automaton (NFA)

*A **nondeterministic finite automaton** is a 5-tuple* $(Q, \Sigma, \delta, q_0, F)$ where

1. Q *is a finite set of* ***states***
2. Σ *is a finite set called the* ***alphabet***
3. δ: $Q \times \Sigma_\varepsilon \rightarrow \mathcal{P}(Q)$ *defines the* ***transition function***
4. $q_0 \in Q$ *is the* ***start state***
5. $F \subseteq Q$ *is the set of* ***accept states***

Deterministic computation	Nondeterministic computation

NFA Examples

Theorem

The class of regular languages is closed under the *concatenation* operation

Proof Sketch

(N.B.) Assumption: