Notes of
Formal Laguage and Automata
CISC 3007

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1 Basic Definitions and Properties

Alphabets

- An alphabet is a finite set of symbols.
- Usually use Σ to represent an alphabet.

Strings

Definition

- A string is a finite sequence of symbols feom an alphabet.

String Operations

- Length: $|1100| = 4$
- Prefix
- Suffix
- Substring
- Concarenation: $\alpha = abd, \beta = ce, \alpha\beta = abdce$
- Exponentiation: $\alpha = abd, \alpha^3 = abdabdabd, \alpha^0 = \epsilon$
- Reversal: $\alpha = abd, \alpha^{Rev} = dba$
- Power of an alphabet: Σ^k is the set of all k-length strings formed by the alphabet in Σ. e.g., $\Sigma = \{a, b\}$, $\Sigma^2 = \{ab, aa, bb, ba\}$, $\Sigma^0 = \{\epsilon\}$