Test 1 Review

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CSCI 340: Computational Models

In general, homework problems are representative of what will be on the test. This is just a high-level overview of what's been covered. If you are unsure if something will be on the test, just ask!

- **Languages**
  - Terms: language, alphabet, words, null/empty string, null set
  - Symbols: + (selection), $\varnothing$, λ, * (Kleene Closure), $^+$ (Positive Closure)
  - Language-defining rules
  - Functions e.g. "length", "reverse"
  - Proving language equivalence
- **Recursive Definitions**
  - Definition
  - Examples (defining, construction proofs)
  - Proving what strings can't contain (e.g. //)
- **Regular Expressions**
  - Definition (and understanding language-defining symbols)
  - Operations: concatenation, selection, closure
  - Creating REs from English (e.g. all words that begin and end with b's)
  - Describing REs, equivalence between two REs
- **Finite Automata**
  - Definitions: states, determinism, initial, final/accepting
  - Formal definition of FA
  - Transition Tables vs. Transition Diagrams
  - Constructing and classifying FAs
- **Transition Graphs**
  - Processing multiple characters at a time
  - "crashing" a machine on invalid input
  - Non-determinism and "successful" paths
  - Multiple start states, λ transitions
  - Generalized Transition Graphs