

CSE 322: Spring'07 Final Syllabus

Regular Languages

- DFAs, NFAs, Regular expressions and equivalence.
- Closure properties.
- Pumping Lemma, Myhill-Nerode theorem.
- Testing properties of regular languages like emptiness, equivalence etc. DFA minimization.

Context Free Grammars

- CFGs, PDAs.
- Chomsky Normal Form.
- Closure properties.
- Pumping Lemma.

Turing Machines

- Definitions of TMs, decidable languages, recognizable languages.
- Diagonalization, counting arguments.
- Undecidable and Unrecognizable languages.
- Decidability of properties of DFAs, PDAs, TMs.

Make sure you are comfortable with the following general ideas: Applying contra-positive logic (esp. in dealing with closure properties), Equivalence relations, Cardinality of infinite sets. You are allowed to state and use results that are already proved in class or in homeworks, so you might want to go over them once to refresh your memory.

Final Exam Structure

The final will have seven questions. The first will be True or False with no explanations needed. There will be two questions on each of DFAs, PDAs and TMs. Two of these will be direct from homework/material covered in class. Two will be questions that need a little thought. The others will be somewhere in between. All the best!