

CS46 review for midterm exam 2

Midterm exam 2 covers material from chapter 2 of the textbook. The focus is on context-free languages, although you should still remember and be able to work with the concepts from chapters 0 and 1. (For example, it is completely reasonable to ask if the class context-free languages is closed under Kleene star, even though sets, closure, and Kleene star appear before chapter 2.) For automata, you should be able to work with *both* the formal definitions and the drawings of finite state machines. You should be able to define and explain the following terms.

- context-free grammar
- parse tree
- ambiguous
- Chomsky normal form¹
- context-free language
- pushdown automaton
- Pumping Lemma for context-free languages

Make sure you understand how your knowledge in this course fits together. I recommend that for context-free languages, you make sure you have:

- the definition
- a technique to prove a language *IS* in this class
- a technique to prove a language *IS NOT* in this class
- some example languages in this class
- some example languages not in this class
- a list of operations that this class is closed under

You might consider revisiting the homeworks and practice problems to remind yourself of examples and techniques we used when working with context-free languages.

¹Just be aware of this; we only used it as an assumption for the coded algorithm, so you don't need to know more than that usage.