

Non-exhaustive list of topics you should know for the exam!

1 Sets

- What is a language?
- concatenation of two sets of string
- power of a set of strings

2 Regular Expressions

- What is the language of a regular expression?
- When are two regular expressions are equal?
- *nullable, der, zeroable, rev*
- induction principle of regular expressions
- tokens, maximal munch rule
- “negative” regular expression
- tokenisation

3 Automata

- DFA, NFA
- What is the language recognised by a DFA?
- Reg \rightarrow NFA
- NFA \rightarrow DFA (subset construction)
- DFA minimisation (Hopcroft’s algorithm)
- complement DFA
- completion of an automaton
- DFA \rightarrow Reg (Brzozowsky’s algorithm, equational systems, Arden’s lemma)

4 Grammars

- ambiguous grammars
- parse trees
- ASTs
- CYK algorithm