

Tutorial Exercises

- a) Give a deterministic finite automaton (DFA) d_1 recognizing the language of the regular expression $a + b$. **(3 points)**
- b) Give a non-deterministic finite automaton (NFA) n_1 recognizing the language of the regular expression a^* . **(3 points)**
- c) Give a regular expression r_1 recognizing the language $\{w \in \{a, b\}^* \mid |w|_b \text{ is even and } w \text{ does not end with } a b \}$. **(4 points)**

Skeleton Make sure that your solutions have indicated names. You can use the following text skeleton to write and submit your solutions. If you do not want to solve immediately some exercises, just leave the corresponding lines commented out.

```
/*-----*\
  Exercise 1.a
\*-----*/

// Uncomment the following lines (by removing "//") and define the DFA d1:
// let d1 =
//   states: ...;
//   delta: ...;
/*-----*\
  Exercise 1.b
\*-----*/

// Uncomment the following lines (by removing "//") and define the NFA n1:
// let n1 =
//   states: ...;
//   delta: ...;

/*-----*\
  Exercise 1.c
\*-----*/

// Uncomment the following line (by removing "//") and define the regexp r1:
// let r1 = regexp "...";
```