

**Advanced Sequence Analysis  
Summer 2019**

**Exercises**

Number 4 (10.05.2019), Discussion: 17.05.2019

1. Provide an infinite family of words for which each word has a trie of its conjugates (rotations) that is of quadratic size.
2. Analyse the efficiency of the Aho-Corasick automaton:
  - (a) the time to construct the automaton for a set of  $k$  patterns of maximal length  $\ell$ ;
  - (b) the time to search in a text of length  $n$ .
3. Give the matching statistics of the pattern  $p = \text{abaaba}$  for the text  $t = \text{aabcbabaaabaabaab}$ .
4. Given an input text  $t$ , develop an algorithm to find the maximal length of a word with two non-overlapping occurrences in  $t$ .