

Sequence Analysis SS 2015

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Sommersemester 2015

11. Exercise sheet, July 2nd, 2015
Discussion: July 7th, 2015

Exercise 1.

Nussinov SCFG

- a) Formulate the inside and outside algorithm for the Nussinov SCFG.
- b) Show how to use your inside and outside variables to calculate the probability that positions i and j are base-paired, summed over all structures.

Exercise 2.

Context free RNA grammars

Consider the hairpin loop CFG from the lecture:

1. Write derivations for $s_1 = \text{CAGGAAACUG}$ and $s_2 = \text{GCUGCAAAGC}$.
2. Consider the complete language generated by the CFG from the lecture. Write a regular grammar that generates exactly the same language. Does this seem like a good idea?