

Lecture: Spezielle Algorithmen der Sequenzanalyse
Summer semester 2006

Exercises

Exercise 6, Discussion: 05/17/2006.

1. SWIFT.

Prove the q -gram lemma.

Q-gram lemma. *Given a local alignment of length n with at most e errors (mismatches or indels), then the aligned regions of the two strings contain at least $\tau = T(n, q, e) := n + 1 - q(e + 1)$ common q -grams, i.e. common substrings of length q .*

2. SWIFT.

Let $A = \text{TACATGTCAGTT}$ and $B = \text{GACTGGCAGC}$ be the two input sequences. For $q = 2$ and $e = 2$, mark all matching q -grams and all parallelograms that are candidates for a local alignment.