

Algorithms in Genome Research
Winter 2009/2010

Exercises

Number 4, Discussion: 2009 November 20

1. Given the signed permutation $A = 2 \ 1 \ -3$
 - (a) Suppose that A represents a linear chromosome and draw its breakpoint graph.
 - (b) List all split reversals.
 - (c) Which of the previous reversals are safe, and which are not?
2. Given the signed permutation $A = -3 \ 2 \ 1 \ -4$
 - (a) Suppose that A represents a linear chromosome, draw its breakpoint graph and compute its reversal distance.
 - (b) The same, supposing that A represents a circular chromosome.
3. Given the signed permutation

$$A = 0 \ -2 \ -10 \ -8 \ -9 \ -7 \ -5 \ -6 \ 4 \ -3 \ 1 \ 11 \ 16 \ 12 \ 14 \ 13 \ 15 \ 17$$

- (a) Find the components without drawing the breakpoint graph of A .
- (b) Which of the components are hurdles? And super-hurdles?