

Exercises – Algorithms for Genome Rearrangement

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Exercise 1 *DCJ InDel – II*

(2 Points)

Consider the linear genomes $A = (1, a, -2, b, 3)$ and $B = (1, c, 2, d, 3)$.

- (a) Draw the adjacency graph $BP(A, B)$. What is the DCJ InDel distance between A and B ?
- (b) Find all possible completions A' and B' . Which InDels occur in each completion?

$$d_{\text{DCJ}}^{\text{ind}} = N - \left[\left(c + p^{\pi, \pi} + p^{\gamma, \gamma + \lfloor \frac{p^{\pi, \gamma}}{2} \rfloor} \right) + \frac{1}{2} (p_{\text{even}}^0 + \min\{p_{\text{odd}}^{\pi}, p_{\text{even}}^{\pi}\} + \min\{p_{\text{odd}}^{\gamma}, p_{\text{even}}^{\gamma}\} + \delta) \right]$$