

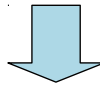
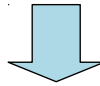
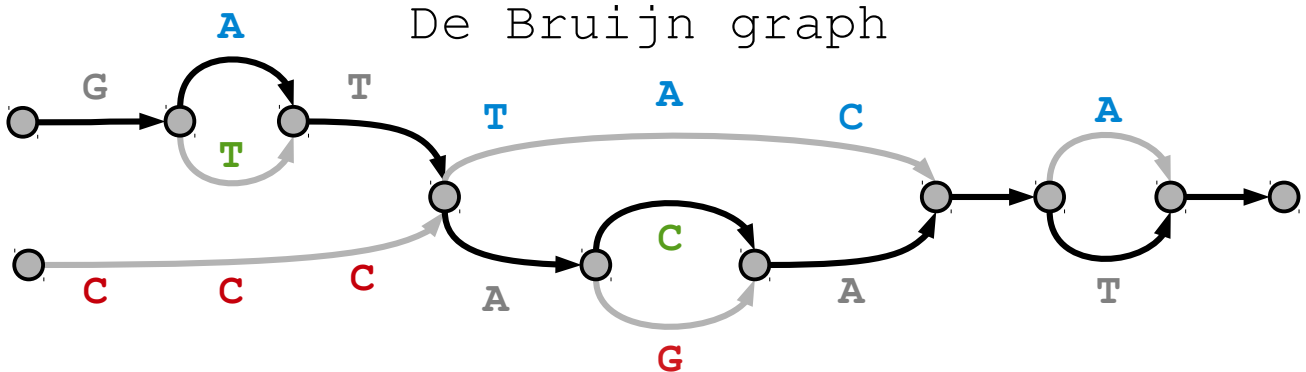
 0.40 -G-A-T-T-A-C-A-
 0.35 -G-T-T-A-C-A-T-
 0.25 -C-C-C-A-G-A-T-



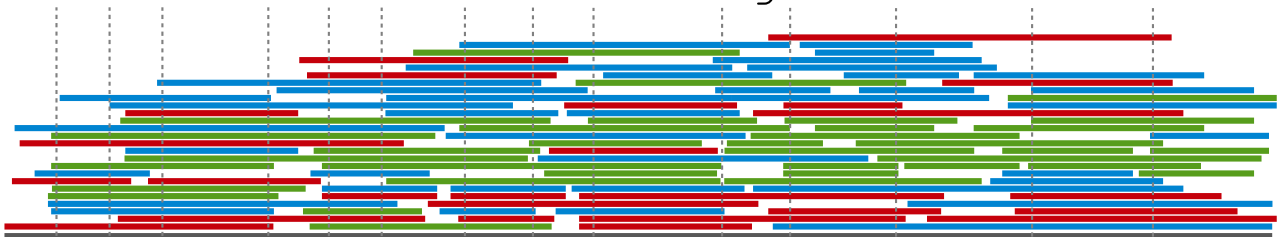
Raw reads



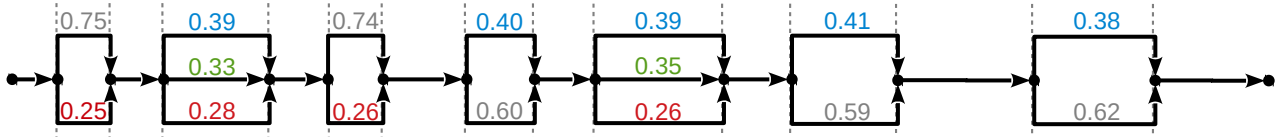
De Bruijn graph



Consensus alignment



Align De Bruijn graph and find coverage



Errors minimization with parsimony penalty

$$\vec{q} = \underset{q}{\operatorname{argmin}} \sum_{i=0}^{|E|} \left(f_i - \sum_{\substack{j=0, \\ \text{if } e_i \in h_j}}^{|H|} q_j \right)^2 + \alpha \sum_{j=0}^{|H|} (q_j \neq 0)$$

$$\vec{q} = \begin{pmatrix} q_{GATTACA} \\ \vdots \\ q_{GTTACAT} \\ \vdots \\ q_{CCCAGAT} \end{pmatrix} = \begin{pmatrix} 0.398 \\ 0 \\ 0.358 \\ 0 \\ 0.244 \end{pmatrix}$$