

$$\mathcal{F} \in \{0,1,-\}^{R \times M} RM\mathcal{F}(j,k)01--$$

$$r_1,r_2 \in \{0,1,-\}^M distanced(r_1,r_2)r_1r_2$$

$$\mathcal{F} \in \{0,1,-\}^{R \times M} feasible\mathcal{F}h^0,h^1 \in \{0,1\}^M rh^0h^1\mathcal{F}01-$$

$$\mathcal{F} \in \{0,1,-\}^{R \times M} \mathcal{F}$$

$$Q10^{-Q/10}$$

$$\mathcal{F} \in \{0,1,-\}^{R \times M} \mathcal{W} \in^{R \times M} \mathcal{F} \mathcal{F}(j,k) \mathcal{W}(j,k)$$

$$Xx_1\ldots x_l\mathcal{A}=\{A,C,G,T\}X|X|XX[i,j]1\leq i\leq j\leq |X|X[1,i]XX[k,|X|]X\overline{X}\tau RXYXYG(V,E),V=\{v_1,\ldots v_i\}RE$$

$$GRRRdagification$$

$$G_s(N_s,E_s)leftrightsideG_sN_s\times\{left,right\}E_sn_i\in N_s(n_i,left)(n_i,right)opposite\ sidesn_i\mathcal{A}=\{A,C,G,T\}e_{ij}(n_i,le$$

$$Disjoint\ paths.$$

$$Similarity.$$

$$Directionality.$$

$$DAG.$$

$$locusL=\{l_1,l_2,\ldots l_k\}$$

$$p_k$$

$$G_sG_s$$

$$R=\{r_1,r_2,\ldots r_h\}G_sq(r)$$

$$LG_s read\text{-}based\ phasing$$

$$wMEC\ for\ simple\ bubbles.LRG_sp_il_jr_k\mathcal{F}\in\{0,1,\ldots a,-\}^{|R|\times|L|}|R||L|a=|l_k|l_ke_i\in\{0,1,\ldots a,-\}\mathcal{F}(j.k)l_kr_j-$$

$$\mathcal{F} \in \{0,1,\ldots a,-\}^{|R|\times|L|} \mathcal{W} \in^{ |R|\times|L|} \mathcal{W}(j,k) \mathcal{F}^{i^{th}} \mathcal{F}(j,k) i^{th} \mathcal{W}(j,k) i^{th} \mathcal{W}(j,k) i^{th} \mathcal{W}(j,k) \mathcal{W}(j,k,i)$$