fatgraph name: K5
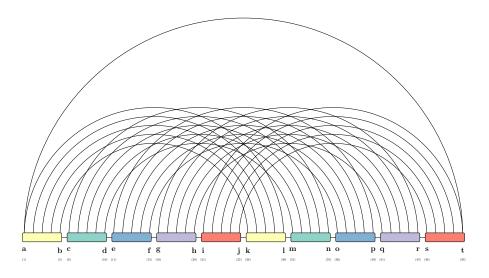

first and last anchors, already given: a, t

$$A = \min_{i,j,r} \left(B[r,j,a,i] + K[t,r,j,i] \right)$$

$$B\left[a,i,j,r\right] = \min_{h} \left(C[h,r,j,a] \right)$$

$$C\left[a,h,j,r\right] = \min_{g,q} \left(D[q,j,g,a] + \boxed{C_\boxtimes}\left[g,h,q,r\right] \right)$$

$$D\left[a,g,j,q\right] = \min_{c,l} \left(E[c,g,q,l] + \boxed{J}\left[a,l \mid c,j\right] \right)$$

$$E\left[c,g,l,q\right] = \min_{d,n} \left(F[c,n,d,l] + G[n,d,g,q] \right)$$

$$F\left[c,d,l,n\right] = \min_{m} \left(\boxed{C_\boxtimes}[c,d,m,n] \right)$$

$$G\left[d,g,n,q\right] = \min_{p} \left(H[n,d,g,p] \right)$$

$$H\left[d,g,n,p\right] = \min_{e} \left(\boxed{I}[p,e \mid n,g] \right)$$

$$\boxed{I}'[p,e \mid n,g] = \min \begin{cases} \boxed{I}'[p,e-1 \mid n,g], & \text{if } e-1, \notin \{p,n,g\} \\ \boxed{I}[p+1,e-1 \mid n,g] + \Delta G(p,e) & \text{if } \{p+1,e-1\} \cap \{n,g\} = \emptyset \end{cases}$$

$$\boxed{I}[p,e \mid n,g] = \min \begin{cases} \boxed{I}[p+1,e \mid n,g], & \text{if } p+1 \notin \{e,n,g\} \\ \boxed{I}'[p,e-1 \mid n,g], & \text{if } e-1, \notin \{p,n,g\} \\ \boxed{I}[p+1,e-1 \mid n,g] + \Delta G(p,e) & \text{if } \{p+1,e-1\} \cap \{n,g\} = \emptyset \end{cases}$$

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$$J'\,[a, l \mid c, j] = \min \begin{cases} J'\,[a, l-1 \mid c, j], & \text{if } l-1, \notin \{a, c, j\} \\ J\,[a+1, l-1 \mid c, j] + \Delta G(a, l) & \text{if } \{a+1, l-1\} \cap \{c, j\} = \emptyset \end{cases}$$

$$J\,[a, l \mid c, j] = \min \begin{cases} J\,[a+1, l \mid c, j], & \text{if } a+1 \notin \{l, c, j\} \\ J'\,[a, l-1 \mid c, j], & \text{if } l-1, \notin \{a, c, j\} \\ J\,[a+1, l-1 \mid c, j] + \Delta G(a, l) & \text{if } \{a+1, l-1\} \cap \{c, j\} = \emptyset \end{cases}$$

$$K\,[i, j, r, t] = \min_{s} \left(C_{\boxtimes}\,[i, j, s, t] \right)$$