Small ideas

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1 complete graphs, small ideas

Suppose the weights are independent variables $N(0,1)$.
A fixed move brings an improvement of $N(0,n)$

$$P(move \in [0,\epsilon]) = \int_0^{\epsilon} \frac{1}{\sqrt{2\pi n}} exp(\frac{-x^2}{2n}) = \frac{1}{2} erf(\frac{\epsilon}{\sqrt{2n}})$$

We can take the Taylor series :

$$\begin{aligned} \frac{1}{2} erf(\frac{\epsilon}{\sqrt{2n}}) &= \frac{1}{\pi} \sum_{i=0}^{\infty} \frac{\epsilon}{(2i+1)\sqrt{2n}} \prod_{k=1}^{i} \frac{-\epsilon^2}{2kn} \\ &\leq \frac{\pi^{3/2}\epsilon^3}{6n\sqrt{2n}} \end{aligned}$$