

Addendum

In Appendix A, the KL divergence between the two discretized prior processes is given by

$$\begin{aligned}\text{KL}[q\|p] &= \text{KL}[q(\mathbf{x}_0)\|p(\mathbf{x}_0)] - \sum_{k>0} \int q(\mathbf{x}_k) \left\langle \ln \frac{p(\mathbf{x}_{k+1}|\mathbf{x}_k)}{q(\mathbf{x}_{k+1}|\mathbf{x}_k)} \right\rangle_{q(\mathbf{x}_{k+1}|\mathbf{x}_k)} d\mathbf{x}_k \\ &= \text{KL}[q(\mathbf{x}_0)\|p(\mathbf{x}_0)] + \frac{1}{2} \sum_{k>0} \langle (\mathbf{f}_k - \mathbf{g}_k)^\top \boldsymbol{\Sigma}^{-1} (\mathbf{f}_k - \mathbf{g}_k) \rangle_{q(\mathbf{x}_k)} \Delta t.\end{aligned}$$