$$\int_{B_r(t_0)} \mathbb{E}\left[\delta_\varepsilon(\nabla X(t)) \, \left|\det \nabla^2 X(t) - \det \nabla^2 X(t_0)\right|\right] dt$$

$\cancel{\le \int_{B_r(t_0)} \mathbb{E}[}$ → as on $B_r(t_0)$, $\|t - t_0\| \le \cdots r$

$$r \sum_{\sigma \in S_D} \sum_{j=1}^{D} \int_{B_r(t_0)} \mathbb{E}\Big[\delta_\varepsilon(\nabla X(t)) \, L_{j\sigma(j)} \prod_{i=1}^{j-1} |\nabla^2 f(t)_{i\sigma(i)}|$$

one of these are the same!

$$\times \prod_{k=j+1}^{D} |\nabla^2 f(t_0)_{k\sigma(k)}| \Big]$$

→ as jth mining

$$\mathbb{E}\left[\, |L_{j\sigma(j)}|^{D} \;\middle|\; \nabla X(t) \right]$$

similarly bounds on

Claim: If ~~$X \sim N(m_X(t), \sigma_X^2(t))$~~

~~and $X \sim$~~

~~If $\binom{X}{Y}$~~