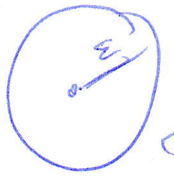
$\mathbb{P}(Y \geq 2)$



B_ε

$\text{var}(x^2 Y'')$

$$\leq \mathbb{P}\left(\sup_{t \in B_\varepsilon} \sup_{\|x\|=1} x^T \nabla^2 Y_x \geq 0 \right)$$

$$= \mathbb{P}\left(M_{0,\varepsilon} \geq 1 \right)$$

$M_{0,\varepsilon}$: # of maxim[a] of $x^T \nabla Y x$ above 0

$$\leq \mathbb{E} M_{0,\varepsilon}$$

can expand using the EEC approximation (probably)

So the limit comes down to the relative # of local maxima between Y, $x^T \nabla^2 Y x$ on B_ε

$\text{var}(x^T \nabla^2 Y_x)$

In 1D $\text{var}(x^2 \nabla^2 Y)$

$= \cancel{x^4 \text{var}(\nabla^2 Y)}$

$x^2 \text{var}(Y'')$

$\boxed{\mathbb{P}(\geq 2 \text{ maxima})}$