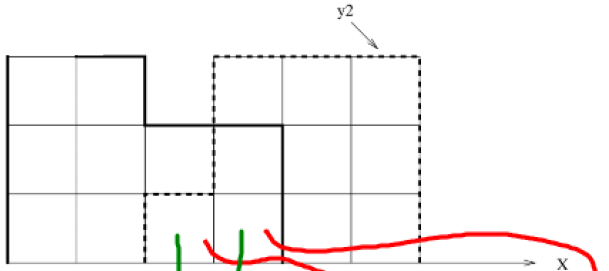

In the discrete case

$$\epsilon_B = \sum_{x \in \mathcal{X}} p(y_{min}|\mathbf{x}).p(\mathbf{x})$$

$$\epsilon_{1NN} = \sum_{x \in \mathcal{X}} (p(y_1|\mathbf{x})p(y_2|\mathbf{x}') + p(y_2|\mathbf{x})p(y_1|\mathbf{x}')).p(\mathbf{x}) \leq 2\epsilon^*$$

$\varepsilon_B = \frac{1}{3} \times \frac{3}{20} + \frac{2}{5} \times \frac{5}{20} = \boxed{\frac{3}{20}}$

$p(y_2|x)$ $p(x)$

$\varepsilon_{1NN} = \left(\frac{2}{3} \times \frac{1}{3} + \frac{1}{3} \times \frac{2}{3}\right) \times \frac{3}{20} + \left(\frac{2}{5} \times \frac{3}{5} + \frac{3}{5} \times \frac{2}{5}\right) \times \frac{5}{20}$

$p(y_1|x)$ $p(y_2|x')$ $p(y_2|x)$ $p(y_1|x')$ $p(x)$

$= \frac{4}{3 \times 20} + \frac{12}{5 \times 20} = 0.186$

$\boxed{0{,}186 \leq 2 \times 0{,}15}$ $\boxed{\varepsilon_{1NN} \leq 2\,\varepsilon_B}$