

$$|\mathbb{P}(X \leq x_n) - \mathbb{P}(X^\varepsilon \leq x_n)|$$

$$= | \mathbb{E} [\underset{f(X)}{1[X \leq x_n]} - \underset{f(Y)}{1[X^\varepsilon \leq x_n]}] |$$

$$\leq \mathbb{E} \left[\sup_{\cancel{x} x} \left| \mathbb{E} \left[\underset{\cancel{b} b}{1[\cancel{x} f(X) \leq \cancel{x} x]} \right] - 1[f(X) \leq x] \right| \right]$$

