

consider prob P' alternative to P

$$Q \geq 0 \\ \int Q = 1$$

density $\stackrel{?}{=} 1$ $\frac{dP'}{dP}$ rel. to P

$$E_{P'}[X] = \int_{\Omega} X dP' = \int_{\Omega} X \frac{dP'}{dP} dP \\ = E[XQ]$$

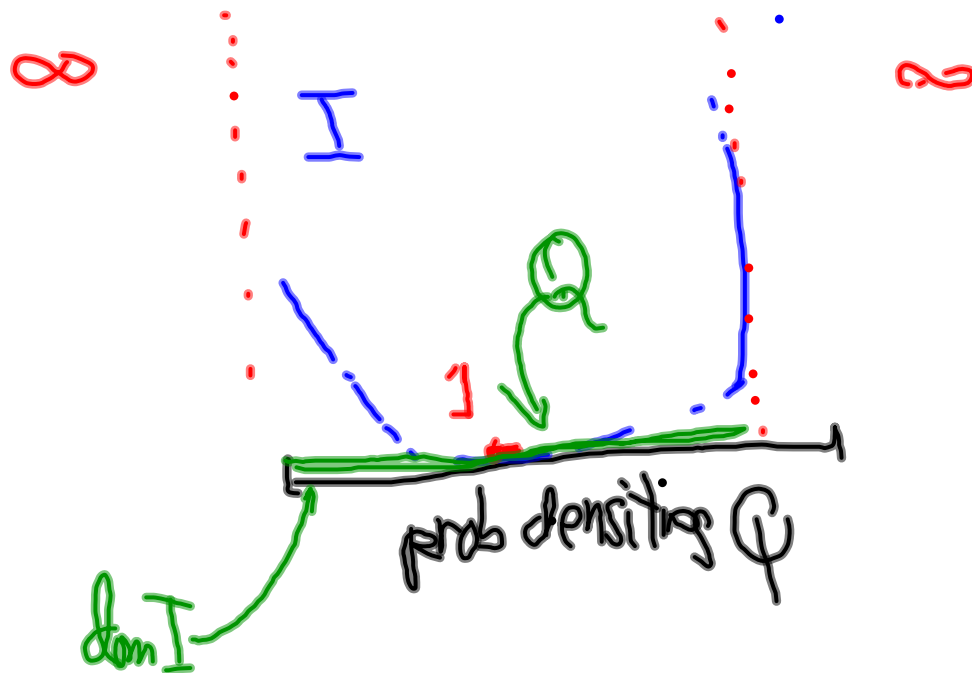
$Q \leftrightarrow$ set of P'

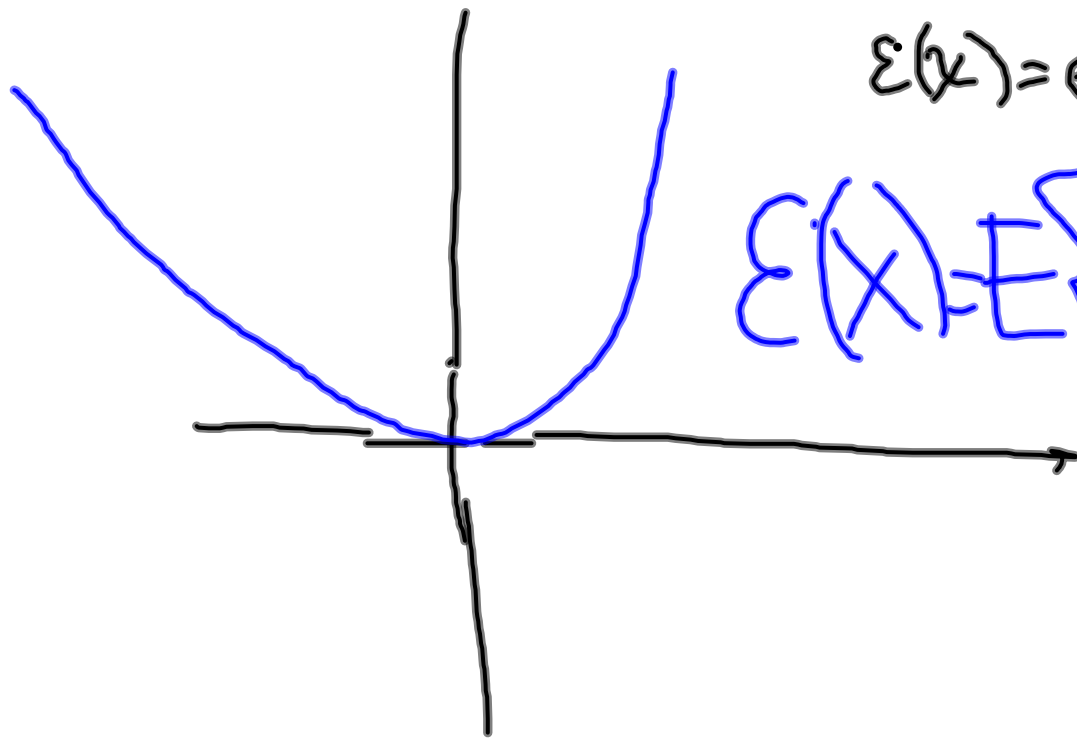
$$R(X) = \sup_{Q \in \mathcal{Q}} E[XQ]$$

$$? R(X) > EX = E[XQ] \text{ for } Q \equiv 1 \\ 1 \in \mathcal{Q}$$

$$I: X \rightarrow I(X)$$

$$\text{dom } I = \{Q \mid I(Q) < \infty\}$$





$$\varepsilon(x) = e^x - x - 1$$

$$\varepsilon(x) = E\{\varepsilon(x)\}$$



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