# Conventional Information Estimate

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- Requires enough data to compute histograms of P(x|s) and P(x)

- Is not feasible for trajectories

$$\mathrm{I} = \sum_{s,x} \mathrm{P}(s,x) \log \frac{\mathrm{P}(s,x)}{\mathrm{P}(s)\mathrm{P}(x)}$$

$$\mathrm{I} = \sum_{s,x} \mathrm{P}(s)\mathrm{P}(x|s) \log \frac{\mathrm{P}(x|s)}{\mathrm{P}(x)}$$

$$\mathrm{P}(s, x) = \mathrm{P}(s)\mathrm{P}(x|s)$$

*Model-free estimate*

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*Model-free estimate*

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$$I = \sum_{s,x} P(s)P(x|s) \log \frac{P(x|s)}{P(x)}$$

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# Model-based Information Estimate