Analogie *StatMech* $\longleftrightarrow$ *Machine/Statistical Learning*

- set of samples drawn iid from pdf $X(x) : Y^n = \{X_i, i = 1, ...N\}$ where X(x) is unknown
- posterior X given Y : $P_{X|Y}(x,y) = \frac{P_{Y|X}(x,y)P_X(x)}{P_Y(y)}$
- rewrite $P_{X|Y}(x,y) = \frac{exp^{log(P_{Y|X}(x,y)P_X(x))}}{P_Y(y)}$
- interpret $P_Y(y)$ as partion fucntion Z
- $H = -log(P_{Y|X}(x,y)P_X(x))$