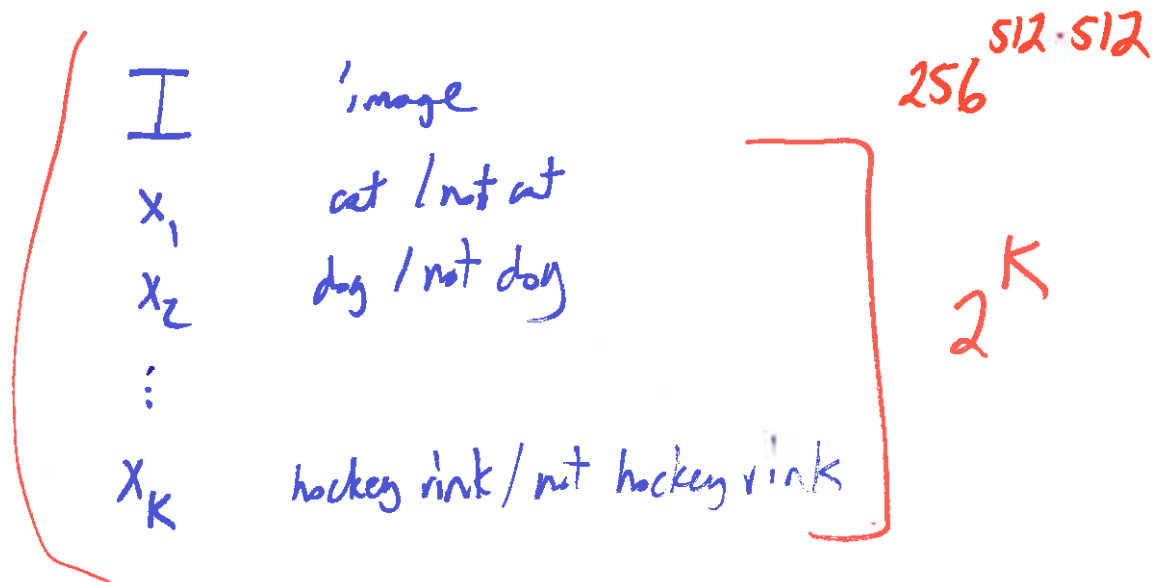


$y(x)$
↑



$$P(I = \overset{512}{\boxed{\overset{256}{\text{M}}}}, x_1 = \text{true}, x_2 = \text{false}, \dots, x_K = \text{true})$$

$$= 0.00632148$$

$$P(x_2 = \text{true}) = \overset{25}{\cancel{0.25}} 0.9998$$

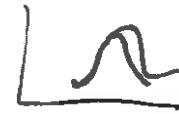
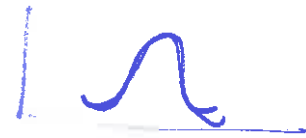
$$P(x_2 = \text{true} \mid x_1 = \text{false})$$

$P(\text{grade} \mid \text{study} = \text{true})$

$P(\text{grade} \mid \text{study} = \text{false})$

$P(\text{happiness in life} \mid \text{study} = \text{true})$

$P(\text{happiness in life} \mid \text{study} = \text{false})$



$$P(A|B) = \frac{P(A, B)}{P(B)} \quad P(A) = \sum_b P(A, B=b)$$

$$P(x_2 = \text{true} \mid I = \boxed{\text{A}}) = ?$$

$$= \frac{P(x_2 = \text{true}, I = \boxed{\text{A}})}{P(I = \boxed{\text{A}})}$$

$$P(I = \boxed{\text{A}})$$

$$= \frac{\sum_{x_k} \dots \sum_{x_4} \sum_{x_3} \sum_{x_1} P(I = \boxed{\text{A}}, x_1 = x_1, x_2 = \text{true}, x_3 = x_3, \dots, x_k = x_k)}{\sum_{x_k} \dots \sum_{x_1} P(I = \boxed{\text{A}}, x_1 = x_1, x_2 = x_2, \dots, x_k = x_k)}$$

$$P(x_2 = \text{true}, x_k = \text{false} \mid I = \boxed{\text{A}})$$

$$P(x_2 = \text{true}, x_k = \text{false} \mid I = \boxed{\text{A}}, x_1 = \text{true}, x_3 = \text{false}, x_6 = \text{true})$$

C = Canucks win the Stanley Cup

S = lucky shirt, do I wear my lucky shirt

$$P(C, S) = P(C) P(S)$$

4

2 + 2

3

1 + 1

