x
y
independent
$:\Leftrightarrow$
$p(x,y) = p(x)p(y)$
x
y
conditional probability
$p(x|y) := \frac{p(x,y)}{p(y)}$
x
y
$p(x) = 0$
$p(x|y)$
$p(x,y) = p(y,x)$
$\overline{p(y)}$
?
x
n
$x_1 \dots x_n$
$:\Leftrightarrow$
${}_1, \dots, x_n) = \prod_{i=1}^{n} p(x_i)$
$p(x|\theta)$
$\theta \in \Theta$
Θ
1
n
$X = \{x_1, \dots, x_n\}$
$\theta|X) = \frac{p(X|\theta)p(\theta)}{p(X)}$
$p(\theta|X)$
$p(X|\theta)$
??
θ
$p(X|\theta) = p(x_1, \dots, x_n|\theta) = \prod_i p(x_i|\theta)$
$\sum_i \log p(x_i|\theta)$
θ
2
θ

Here we are inconsistent in our notation, because capitals usually is reserved for random vari-