

Diskrete (X, Y)

Simultane pmf

$$f(x, y) = p(X=x, Y=y)$$

$$0 \leq f(x, y) \leq 1$$

marginal

$$f(x, y) \quad y=y_1, y=y_2, \dots$$

$$x=x_1 \quad f(x, y) = p(x, y)$$

$$x=x_2$$

...

...

...

$$f_X(x) \downarrow$$

$$f(x_1) = p(X=x_1)$$

$$f(x_2) = p(X=x_2)$$

$$\sum_x \sum_y f(x, y) = 1$$

marginal pmf $f_X(x) = \sum_y f(x, y)$

