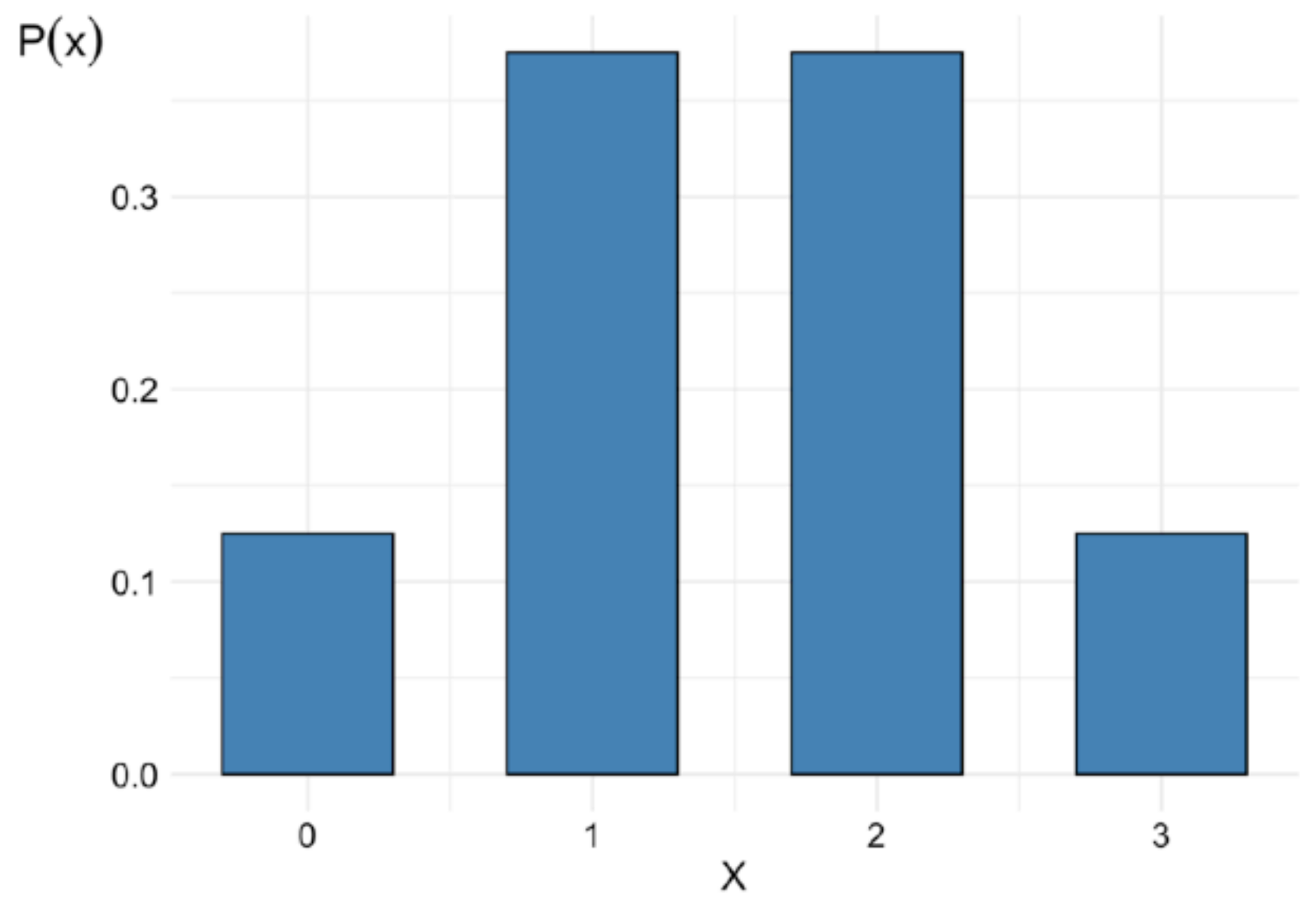
example (cont'd...)


P(x)
0.3
0.2
0.1
0.0
0
1
2
3
X

discrete random variables: probability mass function

discrete random variables: probability mass function

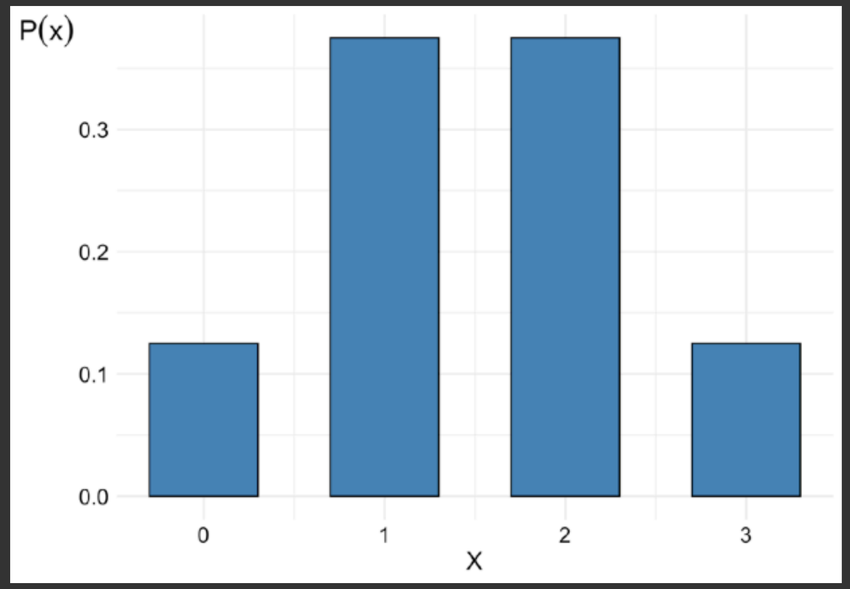
example (cont'd...)

Toss a coin 3 times: the sample space is $\Omega : \{H,T\} \times \{H,T\} \times \{H,T\}$

Define the random variable: $X =$ the number of heads

What is the probability distribution of X?

x	$f(x) = P(X = x)$
0	1/8
1	3/8
2	3/8
3	1/8



This function can be written as: $f(x) = \dfrac{4 - |3 - 2x|}{8}$

expected value

The expected value, is the (probability) weighted average of the possible outcomes

$$E(X) = \sum_x x \cdot P(X = x)$$

the center of gravity of the PMF