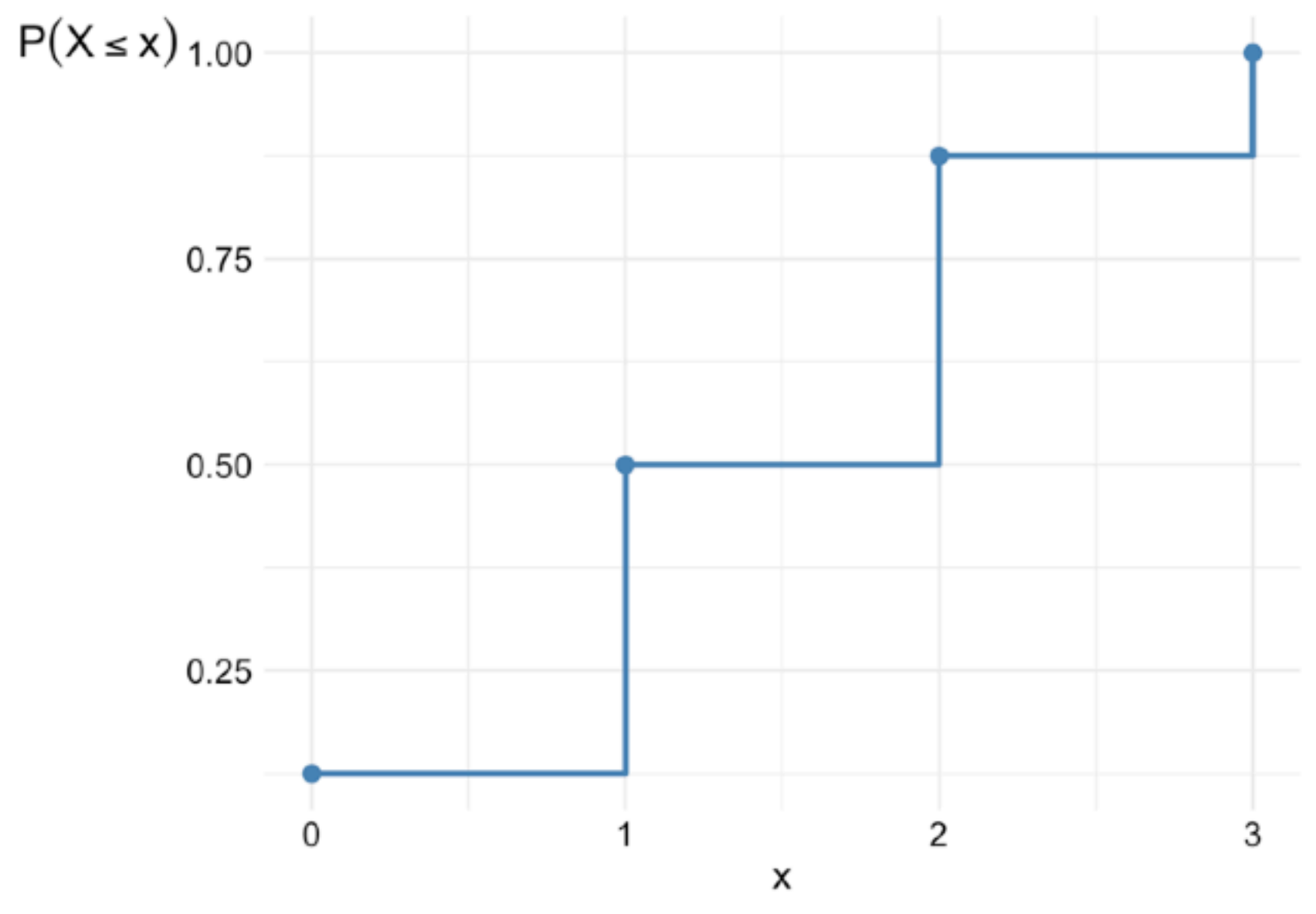
example (cont'd...)

exercise 4


P(X ≤ x)
1.00
0.75
0.50
0.25
0
1
2
3
x

cumulative distribution function

cumulative distribution function

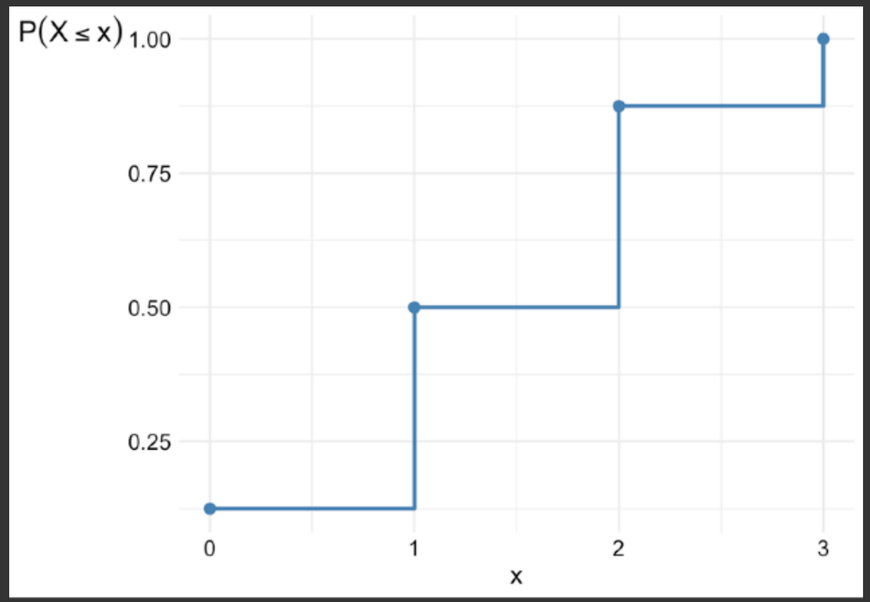
example (cont'd...)

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 cdf of X?

x	$f(x) = P(X = x)$	$F(x) = P(X \leq x)$
0	1/8	1/8
1	3/8	4/8
2	3/8	7/8
3	1/8	8/8



exercise 4

What about the conditions for cdf, are they satisfied?

joint, marginal and conditional distributions

Contingency table based on relative frequencies

example

Suppose we are interested in the relationship between an individual's hair (X) and eye (Y) color.

	X				
Y	$P(X, Y)$	blonde	red	brown	black	$\sum$
	blue	0.12	0.05	0.12	0.01	0.30
	green	0.12	0.07	0.09	0	0.28
	brown	0.16	0.07	0.16	0.03	0.42
	$\sum$	0.40	0.19	0.37	0.04	1.00