6. Exercise: Time until the first failure

Exercise: Time until the first failure

1/1 point (graded)

Let the sequence X_n, $n = 1, 2, 3, \ldots$, be a Bernoulli process with parameter $\mathbf{P}(X_n = 1) = p$ for all $n \geq 1$. Let U be the time when a value of 0 is first observed: $U = \min\{n : X_n = 0\}$ Then, the random variable U is:

- Geometric with parameter p
- Geometric with parameter $1 - p$ ✔
- None of the above

Solution:

For $n \geq 1$, the event $\{U = n\}$ corresponds to $n - 1$ 1's followed by a 0. Its probability is $p^{n-1}(1 - p)$, which corresponds to a geometric PMF with parameter $1 - p$.

提交 你已经尝试了1次（总共可以尝试1次）

Answers are displayed within the problem

讨论

显示讨论

主题： Unit 9 / Lec. 21 / 6. Exercise: Time until the first failure