4. Exercise: LMS estimation

Exercise: LMS estimation

1/1 point (graded)

Let Θ be the bias of a coin, i.e., the probability of Heads at each toss. We assume that Θ is uniformly distributed on $[0, 1]$. Let K be the number of Heads in 9 independent tosses.

By performing some fancy and very precise measurements on the structure of that particular coin, we determine that $\Theta = 1/3$. Find the LMS estimate of K based on Θ.

3

✔ **Answer:** 3

Solution:

Do not be confused by the choice of notation. Here, K is the variable being estimated and Θ is an observation. The posterior in this case is $p_{K|\Theta}$ and is a binomial distribution with parameters 9 and $1/3$. Thus, the LMS estimate is $\mathbf{E}[K \mid \Theta = \theta] = n\theta = 9/3 = 3$.

提交 You have used 1 of 3 attempts

Answers are displayed within the problem

讨论

显示讨论

Topic: Unit 7 / Lec. 16 / 4. Exercise: LMS estimation