

STAT 150 HOMEWORK #11

SPRING 2023

NOT DUE

1. Durrett 5.4 (there is a typo in the statement of part (b): you should show that $(1/n) \log Y_n \rightarrow -1$). Hint: you will need to remember some calculus. The point of the exercise is that $M_n \rightarrow 0$ almost surely even though $\mathbb{E}[M_n] = 1$ for all n , hence the “unfair fair game”. Of course, you know by now that expected value does not tell the complete story.
2. Durrett 5.6 (Hint: assume that $\sigma^2 > 0$ since otherwise the statement is trivial. What can you say about $\mathbb{P}(T < \infty)$?)