

Exercise 8



1. Exercise 13 in Chapter 8 of Ross (P.152).
2. Exercise 15 in Chapter 8 of Ross (P.152).
3. Write a subroutine that takes as input a “data” vector of observed values, and which outputs the median as well as the bootstrap estimate of the variance of the median, based on $r = 100$ bootstrap replicates. Simulate $N = 200$ Pareto distributed random variates with $\beta = 1$ and $k = 1.05$.
 - (a) Compute the mean and the median (of the sample)
 - (b) Make the bootstrap estimate of the variance of the sample mean.
 - (c) Make the bootstrap estimate of the variance of the sample median.
 - (d) Compare the precision of the estimated median with the precision of the estimated mean.