Statistics 3858b Assignment 2

Handout January 27, 2016; Due date: February 5, 2016

These problems are all from the course text unless otherwise stated.

- 1. 8.10.4 (a), (c), (d)
- 2. 8.10.18 a-c $\,$
- 3. 8.10.32
- 4. 8.10.46. Bootstrap here (part e and f) means the parametric bootstrap as discussed in class. For part (g) obtain the confidence intervals marginally, that is for each parameter separately; for this you will need to obtain the observed information matrix $I(\hat{\theta})$.
- 5. 8.10.48 (recall chapter 4, approximation of moments).

Also write a R program to compare, with discussion, these two estimators using the Monte Carlo simulation method, at $\lambda = .1$ and 1. Do these for data sample n = 50 and 100, and M = 1000 Monte Carlo replicates. Within the R code, calculate the efficiency (ratio of variances) and comment on how well these compare with the propogation of errors method above. Recall Section 4.6, and page 162 where propagation of errors is discussed.

Remark : This is yet a third example of an estimator. It is neither the MLE or method of moments estimator.

6. 8.10.58 (a), (b), (c)