Corrections to TPE 2nd Edition (3rd corrected printing, 2003)

February 20, 2020

Chapter 1 Problems

5.7(b) The 2nd line of relation (5.26) that the problem is asking to be verified should read as follows:

$$\mathbb{E}\left[\sum(X_i-\xi_i)\right]^4 = \sum \mathbb{E}(X_i-\xi_i)^4 + 6\binom{n}{2}\sum_{i<j}\sigma_i^2\sigma_j^2.$$

Chapter 3 Problems

2.19(a) The problem statement should read as follows:

In Example 2.16(a), X is not risk-unbiased.

3.7(b) The problem statement should read as follows:

Let $X \sim \chi^2(f)$, a χ^2-distribution with f degrees of freedom. Then, the minimizing value in (a) is $c = \{\text{median of } \chi^2(w)\}$, where $w = f + 2$. [Hint: Example 1.5.14.]

3.9 The natural exponential family and conjugate prior equation numbers should be (3.18) and (3.19), respectively. Also, in (b), the results one needs to show are:

$$\mathbb{E}A'(\eta) = \mu, \qquad \text{and} \qquad \text{var}[A'(\eta)] = (1/k)\mathbb{E}A''(\eta).$$

6.10(b) What is being asked for is to verify that the <u>risk</u> (not Bayes risk) is given by:

$$p\sigma^2 - \frac{2(p-1)\sigma^4}{\sigma^2+\tau^2} + \left(\frac{\sigma^2}{\sigma^2+\tau^2}\right)^2 \sum_{i=1}^{p}\mathbb{E}(X_i-\bar{X})^2$$

Chapter 4 Problems

1.7 The UMVU estimator of $p(1-p)$ should be:

$$\delta' = \frac{x(n-x)}{n(n-1)}.$$

2.5 The right-most expression for the Bayes risk should be multiplied by -1.

3.4 The distribution of the X_i referenced there should be that of equation (4.3.7), i.e., (3.7) in Ch. 4.

3.9 The references to the exponential family and conjugate prior should be (3.18) and (3.19), respectively. Also, in (b), we should have:

$$\mathrm{var}[A'(\eta)] = (1/k)\mathbb{E}A''(\eta)$$

6.10 In (b) you should compute risk, not Bayes risk. (There may also be a typo in the expression given there for the risk...)

Chapter 6 Problems

3.18 The problem statement should read as follows:

> In Problem 3.15(c), with f the Cauchy density $\mathcal{C}(0,1)$, the likelihood equation has...

4.4 The estimators to be evaluated should be (4.8) and (4.11).