Errata for the Fourth Edition

September 13, 2014

2 Actuarial Models, Mixtures and Risk

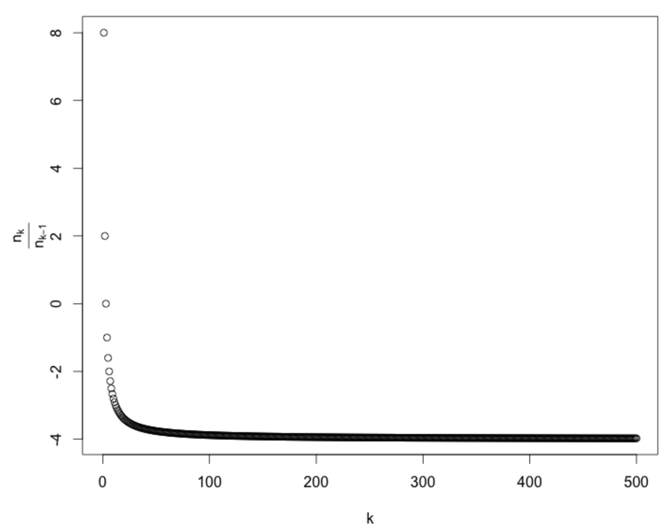
1. In Example 2.10, part (c) should ask "Compute the expected excess of the loss over 2,000 (i.e. compute $e_X(2,000)$).
2. For Theorem 2.7, (2.3) should be applied to both *continuous* and *discrete* random variables, (2.4) should be removed.

3 Continuous Models

1. After Example 3.13, a list of examples of linear exponential family distributions should not have included the inverse exponential distribution.

4 Discrete Models

1. In the end of chapter problem 3, the picture should look like this:



The solution should read as follows:

Recall that $\frac{n_k}{n_{k-1}}$ can be used to estimate $\frac{p_k}{p_{k-1}} = a + \frac{b}{k}$. We can essentially look at this plot to get a sense of the relationship between $\frac{p_k}{p_{k-1}}$ and k, and deduce the possible distributions using process of elimination.

First, we know that the distribution cannot be geometric, since the geometric distribution is characterized by $b = 0$, which would indicate that $\frac{p_k}{p_{k-1}}$ has no correlation with k, showing up as a flat line rather than an upward slope.

Also, the distribution cannot be negative binomial due to the fact as $k \to \infty$, the value will converge to $\frac{\beta}{1+\beta} > 0$ for all $0 < \beta < \infty$. Since the y-axis drops below zero, this is clearly not the case. Similarly, for the Poisson distribution, as $k \to \infty$, the ratio of $p_k/p_{k+1} \to 0$. The only option left is binomial.

6 Aggregate Loss Models

1. In the end-of-chapter problem 21, you will need to assume the population size is 100 (this is not a hint).

13 Model Selection

1. In the end-of-chapter solution to problem 1, the log-likelihood and its first derivative should be $l(\theta) = -7\ln\theta - 6791/\theta$ and $l'(\theta) = -7/\theta + 6791/\theta^2$, respectively.

2. The end-of-chapter solution to problem 3(a) should be replaced with the following:

   Here, the first 3 values are truncated, so our table begins at 135. We apply $F^*(x) = 1 - e^{-(x-100)/970.14}$.

x	$F^*(x)$	$F_n(x-)$	$F_n(x)$	$\lvert D(x)\rvert$
135	0.0354	0.0000	0.1429	0.1074
432	0.2898	0.1429	0.2857	0.1469
678	0.4489	0.2857	0.4286	0.1632
754	0.4904	0.4286	0.5714	0.0810
1025	0.6146	0.5714	0.7143	0.0997
2015	0.8610	0.7143	0.8571	0.1468
2452	0.9115	0.8571	1.0000	0.0885

   $|D(x)|$ is calculated to be the maximum distance between $F^*(x)$ and $F_n(x)$ at both endpoints. The maximum $|D(x)| = 0.1632$ occurs at $x = 678$.