Hidden Markov Models for Time Series
An Introduction Using R

Errata as at 8 April 2011

- On p. 10, the fourth displayed equation should read as follows:

$$\delta_i = \frac{e^{\tau_i}}{1 + \sum_{j=2}^{m} e^{\tau_j}} \quad (i = 2, \ldots, m),$$

- On p. 19, line −2 of Section 1.3.3 should read:

  ... Exercise 8 in Chapter 2 and Exercise 9 in Chapter 8 present

- On p. 44, the last four lines of Exercise 10 should read:

  `qpois.HMM(p, m, lambda, gamma, delta=NULL)`

  The function `dpois.HMM` computes the probability function at the arguments specified by the vector `x`, `ppois.HMM` the distribution function, and `qpois.HMM` the inverse distribution function.

- On p. 61, the line after (B.6) should read:

  To establish validity for $t = T - 1, \ldots$

- On p. 83, line −4 should read:

$$\xi_{ti} = \max_{c_1, c_2, \ldots, c_{t-1}} \Pr(\mathbf{C}^{(t-1)} = \mathbf{c}^{(t-1)}, C_t = i, \mathbf{X}^{(t)} = \mathbf{x}^{(t)}).$$

- On p. 83, line −2 should read:

  the following recursion, for $t = 2, 3, \ldots, T$ and $j = 1, 2, \ldots, m$:

- On p. 100, the passage starting on line 15 should read:

$$-\phi/(1 + \phi^2);$$

  see Exercise 3. This is opposite in sign to ϕ and smaller in modulus. For instance, if $\phi = 1/\sqrt{2}$, the correlation of z_t and z_{t+1} is $-2\phi/3$.

- On p. 102, part (c) of Exercise 3 should read:

  (c) $\mathrm{Corr}(z_t, z_{t+1}) = -\phi/(1 + \phi^2)$;

- On p. 146, line −2 should read:

  ... the probability $\nu_t(j, k; \mathbf{x}^{(t)})$, with the

- On p. 195, line 1 should read:

  Hence $\Pr(C_t = j \mid C_{t-1} = i, x_{t-1} = x)$ is approximated by

- On p. 226, line 7 should read:

$$\xi_{ti} = \max_{c_1, c_2, \ldots, c_{t-1}} \Pr(\mathbf{C}^{(t-1)} = \mathbf{c}^{(t-1)}, C_t = i, \mathbf{X}^{(t)} = \mathbf{x}^{(t)}).$$

- On p. 241, line 12 of the code in A.1.4 should read:

  ```
  code=mod$code,mllk=mllk,AIC=AIC,BIC=BIC)
  ```

- On p. 243, a line of code is missing from A.2.3. Insert, after line 3 of A.2.3:

  ```
  n <- length(x)
  ```

- On p. 251, line 4 of the code in A.4.1 should read:

  ```
  gamma <- matrix(0,m,m)
  ```

- On p. 264, the details of the paper by Welch should read:

  Welch, L.R. (2003). Hidden Markov models and the Baum–Welch algorithm. *IEEE Inform. Th. Soc. Newsl.* **53**, pp. 1, 10–13.

- On p. 267, the author index entry for Guttorp should read:

  Guttorp, P., 80, 123, 181, 260, 264

- On p. 269, the author index entries for Robert and Titterington should read:

  Robert, C.P., 70, 71, 103, 111, 112, 150, 258, 262, 263

  Titterington, D.M., 25, 70, 71, 103, 111, 112, 150, 262–264