Errata of *Time Series with Mixed Spectra* by Ta-Hsin Li (CRC Press, 2013)
August 10, 2017

In the following are the errors spotted so far in the book *Time Series with Mixed Spectra* (CRC Press, 2013). Please feel free to contact the author at `thl@us.ibm.com` for any other errors.

1. Page 71, Line -8: "Because $\int \dot{p}(x)\,dx = 0$" should be replaced by "Because (3.1.1) implies $\int \dot{p}(x)\,dx = 0$". It follows from the fact that

$$\begin{aligned} \mathbf{0} &= E\{\nabla \log p(y_t - x_t(\boldsymbol{\theta}))\} \\ &= \int \nabla p(y - x_t(\boldsymbol{\theta}))\,dy \\ &= \int \dot{p}(y - x_t(\boldsymbol{\theta}))(-\nabla x_t(\boldsymbol{\theta}))\,dy \\ &= \left\{\int \dot{p}(x)\,dx\right\}(-\nabla x_t(\boldsymbol{\theta})) \end{aligned}$$

   and $\nabla x_t(\boldsymbol{\theta}) \neq \mathbf{0}$ for at least some t and $\boldsymbol{\theta}$ (otherwise $x_t(\boldsymbol{\theta})$ would reduce to a constant).

2. Page 258, Paragraph 2, Line 3 & 5: "prorate" should be "prolate"

3. Page 282, Paragraph 2, Line 3: "pp." should be "p."

4. Page 564, Line -12: The expression of $h_{\alpha\alpha'}(\omega)$ should be replaced by

$$h_{\alpha\alpha'}(\omega) = \sum_{u=-\infty}^{\infty} \left\{ \frac{\alpha + \alpha' - 2\alpha\alpha'}{2\sqrt{\alpha(1-\alpha)\alpha'(1-\alpha')}} - \frac{1}{2\sqrt{\alpha(1-\alpha)\alpha'(1-\alpha')}}\,\gamma_{\alpha\alpha'}(u) \right\} \exp(-iu\omega).$$

5. Page 564, Line -6: "$1 - \frac{1}{2}\{\alpha(1-\alpha)\alpha'(1-\alpha')\}^{-1/2}\gamma_{\alpha\alpha'}(u)$" should be replaced by "$\frac{1}{2}\{\alpha(1-\alpha)\alpha'(1-\alpha')\}^{-1/2}\{\alpha + \alpha' - 2\alpha\alpha' - \gamma_{\alpha\alpha'}(u)\}$". Because $\gamma_{\alpha\alpha'}(u) = \alpha + \alpha' - 2F_u(\lambda_\alpha, \lambda_{\alpha'})$, it follows that $F_u(\lambda_\alpha, \lambda_{\alpha'}) = \frac{1}{2}\{\alpha + \alpha' - \gamma_{\alpha\alpha'}(u)\}$ and hence

$$\begin{aligned} \mathrm{Cov}\{\mathscr{I}(y_t \le \lambda_\alpha), \mathscr{I}(y_s \le \lambda_{\alpha'})\} &= F_{t-s}(\lambda_\alpha, \lambda_{\alpha'}) - \alpha\alpha' \\ &= \tfrac{1}{2}\{\alpha + \alpha' - 2\alpha\alpha' - \gamma_{\alpha\alpha'}(t-s)\}. \end{aligned}$$

   Moreover, we have $\mathrm{Var}\{\mathscr{I}(y_t \le \lambda_\alpha)\} = \alpha(1-\alpha)$. Hence the expression.

6. Page 565, Line 7: The expression of $q_{\alpha\alpha'}(\omega)$ should be replaced by

$$q_{\alpha\alpha'}(\omega) = \sum_{u=-\infty}^{\infty} \{F_u(\alpha, \alpha') - \alpha\alpha'\} \exp(-iu\omega).$$

   It follows from the correct expression of $h_{\alpha\alpha'}(\omega)$ and the fact that $\eta_\alpha = \sqrt{\alpha(1-\alpha)}$ when the marginal distribution is uniform U(0,1).