Errata for “Stochastic Modelling for Systems Biology, second edition”

Darren J. Wilkinson

July 14, 2019

This is the errata for the book Stochastic Modelling for Systems Biology, second edition, published by Chapman & Hall/CRC, November 2011. Note that there is a separate errata for the first edition. I will update this as I (or others) spot errors, so please check regularly. I will update the date (above) with each new issue. If you have found an error not listed below, then please email me at darren.wilkinson@ncl.ac.uk with page number and details.

You can get the latest version of this errata from:
http://www.staff.ncl.ac.uk/d.j.wilkinson/smfsb/2e/errata2e.pdf

- p.32,l.-5. Replace the text:

> It is fairly clear that the dimension of the image-space and null-space must sum to the dimension of the space being mapped into, which is the number of rows of the matrix. So, if we fix on \( S \), which has dimension \( u \times v \), suppose the rank of the matrix is \( k \). Let the dimension of the null-space of \( S \) be \( p \) and the dimension of the null-space of \( A(= S^T) \) be \( t \).

with the text:

> By the rank-nullity theorem, the dimension of the image-space and null-space must sum to the dimension of the space being operated on, which is the number of columns of the matrix. So, if we fix on \( S \), which has dimension \( u \times v \), suppose the rank of the matrix is \( k \). Let the dimension of the null-space of \( S \) be \( p \) and the dimension of the null-space of \( A(= S^T) \) be \( t \).

Thanks to Ragesh Kumar Ramachandran for spotting this issue.

- p.151. The description of how to simulate uniform order statistics isn’t quite correct.

  - l.11. The CDF should be \( F_{(1)}(x) = 1 - (1 - x/T)^m \), and so it is now also debatable as to whether it is really “clear”!
  
  - l.12. You should therefore set \( x_{(1)} = T(1 - u^{1/m}) \).
  
  - l.14. You should therefore set \( x_{(i)} = x_{(i-1)} + (T - x_{(i-1)})(1 - u^{1/(m-i+1)}) \).
  
  - l.20. Step (b) should then be as above.

Thanks to GitHub user @msadeghpour for spotting this error.

- p.157,l.13. The three “2”s that occur in the expression should all be “3”s, as it represents the third-order term in the Taylor expansion. Thanks to Mark Girolami for pointing out this typo.
• p.164,l.12. The equation should read:

\[ dY_t = \mu \left( \frac{2\lambda}{\mu} - Y_t \right) dt + \sqrt{\mu} \sqrt{Y_t} dB_t. \]

*Thanks to Silvia Calderazzo for this correction.*

• p.294,l.–6. Item 6. The condition should be “\( t < T \)”, not “\( t < M \)”.  
• p.306,l.–7. There is a prime (′) missing from the second \( k' \).