Cumulative Errata

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References

[1] G. E. Crooks and D. Chandler. Gaussian statistics of the hard-sphere fluid. *Phys. Rev. E*, 56(4):4217–4121, Oct 1997.

[2] G. E. Crooks. Nonequilibrium measurements of free energy differences for microscopically reversible Markovian systems. *J. Stat. Phys.*, 90(5-6):1481–1487, Mar 1998.

[3] G. E. Crooks. *Excursions In Statistical Dynamics*. PhD thesis, University of California, Berkeley, Dec 1999.

[4] G. E. Crooks. Path-ensemble averages in systems driven far from equilibrium. *Phys. Rev. E*, 61(3):2361–2366, Mar 2000.

[5] G. E. Crooks. Beyond Boltzmann-Gibbs statistics: maximum entropy hyperensembles out of equilibrium. *Phys. Rev. E*, 75:041119, Apr 2007.

[6] G. E. Crooks. Measuring thermodynamic length. *Phys. Rev. Lett.*, 99:100602 (4), Sep 2007.

[7] E. H. Feng and G. E. Crooks. Length of time's arrow. *Phys. Rev. Lett.*, 101(9):090602, Aug 2008.

1 Gaussian Statistics Of The Hard-Sphere Fluid (1997) [1]

The lines in Fig. 3 are mislabeled. The dashed line is the fit to the data using an uninformative prior, while the solid line is a fit using the ideal gas prior. The final line of this paper should read "This work was supported by NSF grant number CHE-9508336."

2 Nonequilibrium measurements of free energy differences for microscopically reversible Markovian systems (1998) [2]

The final line of this paper should read "This work was supported by NSF grant number CHE-9508336."

3 Excursions in Statistical Dynamics (1999) [3]

Chapter 1: Missing $M(1)$ After Eq. 1.2, i.e. $M = (M(0), M(1), ..., M(t-1))$; Section 1.3 (p13), $U(t_3, t_1) = U(t_3, t_2)U(t_2, t_1)$ not $U(t_2, t_1) = U(t_3, t_2)U(t_2, t_1)$;

Chapter 3: Eq. 3.3, $x(\tau)$ not $x(t)$.

Chapter 4: Free Energies From Nonequilibrium Work Measurements Eq 4.5, wrong sign 3rd line; Something is wrong with Eq. 4.22, I just haven't got around to figuring out what it is.

Chapter 5: Response theory: The first sentence of the last paragraph of Section 5.3 should read "An approximation for the nonequilibrium entropy can be derived from this expression by substituting the explicit canonical equilibrium probability and ..". The original sounds awful.

Chapter 7: Pathways to evaporation: Equation 7.3 has several sign errors. It should read

$$\mathrm{P}\big(s(t,i)\big) = \frac{\exp\Big(+\beta H s(t,i) + \beta J \sum_{\{j:<i,j>\}} s(t,i)s(t\text{-}1,j)\Big)}{2\cosh\Big(-\beta H - \beta J \sum_{\{j:<i,j>\}} s(t\text{-}1,j)\Big)}\,.$$

There are several misplaced brackets in Eq. 7.4.

$$\frac{\mathcal{P}[s(t,i)=+1,\mathbf{s}]}{\mathcal{P}[s(t,i)=-1,\mathbf{s}]} = \exp\Big(+2\beta H + 2\beta J \sum_{\substack{\{j:<i,j>\},\\ \theta=\pm 1}} s(t+\theta,j)\Big) \times \prod_{\{j:<i,j>\}} \left[\frac{\cosh\Big(\beta H + \beta J\big(\sum_{\{k:<j,k>,k\neq i\}} s(t,k)\text{-}1\big)\Big)}{\cosh\Big(\beta H + \beta J\big(\sum_{\{k:<j,k>,k\neq i\}} s(t,k)\text{+}1\big)\Big)} \right]$$

References: Reference 52 contains an extra period.

Minor typos :

Page 6: "flow of energy into into the system"
Page 9: "states energies"
Page 41: "because not only because" in the last sentence of second paragraph
Page 43: "failure can occurs" in last sentence of first para
Page 45: "are essential the same" in the caption
Page 52: parenthetical comment in first para is hard to parse
Page 54: "can derived" should be "can be derived" in second sentence
Page 56: "partial due" should be "partially due" in the caption

Thanks: Xuenan Li; David Sivak

4 Path-ensemble averages in systems driven far from equilibrium (2000) [4]

Eq. 14 contains various typos.

5 Beyond Boltzmann-Gibbs statistics: Maximum entropy hyper-ensembles out-of-equilibrium, Phys. Rev. E (2007) [5]

Equation 6 contains a sign error. It should read

$$P(\theta) \propto \exp\left(-\beta\lambda \sum_i \theta_i E_i - \lambda \sum_i \theta_i \log \theta_i\right) .$$

Kudos: Eric Van der Straeten

6 Measuring thermodynamic length, Phys. Rev. Lett. (2007) [6]

The last equation on the second page should be a minus sign after $\Delta S_{\rm system}$, and the Eqs. (10) and (11) should have an extra minus sign "$-\omega = \cdots$". The signs in Eq. 12 are correct; an extra minus sign enters from the definition of g_{ij}, Eq. (4). Kudos: David Sivak (2010-01-15).

Eq. (15) contains extra factors of $1/K$. It should read

$$\begin{aligned}\ell(\Delta\psi_{12}) = &\sum_{k=1}^{K} \ln \frac{1}{1+\exp\left(-\Delta\psi_{12} + (\lambda_2^i - \lambda_1^i)X_{i,1,k}\right)} \\ &+ \sum_{k=1}^{K} \ln \frac{1}{1+\exp\left(-\Delta\psi_{21} + (\lambda_1^i - \lambda_2^i)X_{i,2,k}\right)} .\end{aligned}$$

The following Eq. (16) is correct.

7 Length of Time's Arrow (2008) [7]

Eq. (6) is missing a twiddle. It should read

$$\frac{P(+W|\Lambda)}{P(-W|\tilde{\Lambda})} = e^{\beta W - \beta\Delta F}$$