ERRATA SHEET FOR "RANDOM MATRICES AND THE SIX-VERTEX MODEL"

1. Introduction

- Page viii, in the middle, "In Chapter 4 we introduce ... with ~~with~~".
- Page viii, in the middle, "In Chapter 5 we derive ... with ~~with~~".

2. Chapter 2

- Page 26, equation (2.3.34). The formula for c is incorrect. It should be
$$c = \frac{2t + (t^2 + 12)^{1/2}}{3}.$$
- Page 40, lines 3, 4 after (2.4.101), and page 41 two lines above (2.4.109). β_j should be b_j.

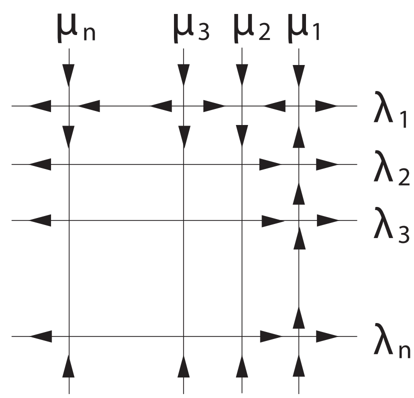
3. Chapter 4

- Page 83, equation (4.2.4). m should be n.

4. Chapter 5

In Chapter 5, there is a problem that the figure 5.10 does not match the exposition. It can be dealt with in the following way:

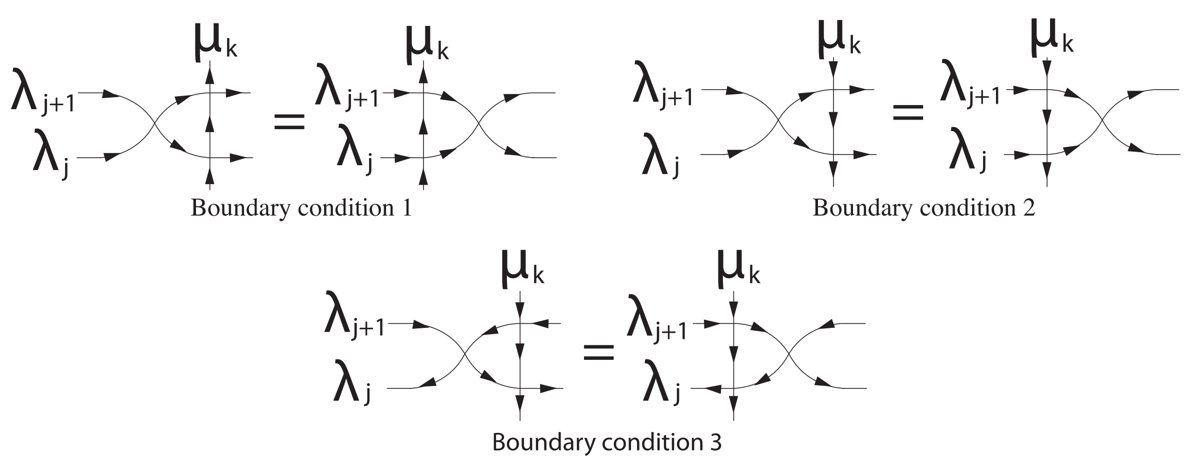
- Lines 5 and 6 of chapter 5: Change "and the columns from left to right" to "and the columns from right to left."
- In figures 5.1, 5.9, and 5.10, the columns should be numbered from right to left, rather than left to right.
- Page 101: Change the last words of page 101 from "upper left-hand" to "upper right-hand".
- Page 94 equation (5.0.8): In denominator, change $\sinh(\lambda_j - \lambda_k)$ to $\sinh(\lambda_k - \lambda_j)$.
- Page 95 equation (5.0.10): In denominator, change $\sin(\lambda_j - \lambda_k)$ to $\sin(\lambda_k - \lambda_j)$.
- Page 104 equation (5.4.4): In denominator, change $\sin(\lambda_j - \lambda_k)$ to $\sin(\lambda_k - \lambda_j)$ in two places.
- Page 105 equation (5.4.10): In denominator, change $\sin(\lambda_j - \lambda_k)$ to $\sin(\lambda_k - \lambda_j)$.
- Page 105 equation (5.4.11): Change $\cos(\lambda_j - \lambda_k)$ to $\cos(\lambda_k - \lambda_j)$.



- Figure 5.10 should be reflected about the vertical axis, as shown above.

The are also some minor typos in Chapter 5:

- Page 89, equation (4.4.4). The condition should be
$$|t| < \gamma < \frac{\pi}{2}\,.$$
- Page 95, line 4 after equation (5.0.10). "is is possible" should be "it is possible".
- Page 95, equation (5.0.11). In line 4 after condition (3), change $\lambda_j = \mu_k + \gamma$ to $\lambda_j = \mu_k - \gamma$
- Page 95, equation (5.0.12). In the second line in equation (5.0.12) the arguments in the function b should be λ_j and μ_k, not λ and μ.
- Page 98, Figure 5.4. Boundary conditions 1 and 3 are the same. Boundary condition 3 should be as Boundary condition 4, with outer vertical arrows reversed, as shown below.



5. Chapter 6

- Page 122, equation (6.3.76). The function $r_n(x)$ has not been defined, so it is better to replace

$$\rho_n^1(x) = -\frac{\sqrt{(x-\alpha_n)(\beta_n-x)}}{2\pi^2}\int_{\alpha_n}^{\alpha+2r}\frac{f(nu)du}{(x-u)\sqrt{(u-\alpha_n)(\beta_n-u)}} - \frac{\sqrt{(x-\alpha_n)(\beta_n-x)}}{2\pi^2}\int_{\alpha+2r}^{\beta-2r}\frac{f(nu)du}{(x-u)\sqrt{(u-\alpha_n)(\beta_n-u)}} - \frac{\sqrt{r_n(x)}}{2\pi^2}P.V.\int_{\beta-2r}^{\beta_n}\frac{f(nu)du}{(x-u)\sqrt{(u-\alpha_n)(\beta_n-u)}}.$$

with

$$\rho_n^1(x) = -\frac{\sqrt{(x-\alpha_n)(\beta_n-x)}}{2\pi^2}\int_{\alpha_n}^{\alpha+2r}\frac{f(nu)du}{(x-u)\sqrt{(u-\alpha_n)(\beta_n-u)}} - \frac{\sqrt{(x-\alpha_n)(\beta_n-x)}}{2\pi^2}\int_{\alpha+2r}^{\beta-2r}\frac{f(nu)du}{(x-u)\sqrt{(u-\alpha_n)(\beta_n-u)}} - \frac{\sqrt{(x-\alpha_n)(\beta_n-x)}}{2\pi^2}P.V.\int_{\beta-2r}^{\beta_n}\frac{f(nu)du}{(x-u)\sqrt{(u-\alpha_n)(\beta_n-u)}}.$$

- Page 124, equation (6.3.90). In the second equation it should be β, not α: Instead of

$$\alpha_n = \alpha - n^{-2}\Delta + \mathcal{O}(n^{-3}), \qquad \beta_n = \alpha + n^{-2}\Delta + \mathcal{O}(n^{-3}),$$

it should be

$$\alpha_n = \alpha - n^{-2}\Delta + \mathcal{O}(n^{-3}), \qquad \beta_n = \beta + n^{-2}\Delta + \mathcal{O}(n^{-3}),$$

- Page 129, equation (6.4.6). In the first equation it should be e^{nl_n}, not e^{-nl_n}: Instead of

$$h_{nn} = -2\pi i e^{-nl_n}\,[\mathbf{T}_1]_{12}\,, \qquad h_{n,n-1} = -\frac{2\pi i e^{nl_n}}{[\mathbf{T}_1]_{21}}.$$

it should be

$$h_{nn} = -2\pi i e^{nl_n}\,[\mathbf{T}_1]_{12}\,, \qquad h_{n,n-1} = -\frac{2\pi i e^{nl_n}}{[\mathbf{T}_1]_{21}}.$$

- Page 131, equation (6.4.15). In the first equation it should be e^{nl_n}, not e^{-nl_n}: Instead of

$$h_{nn} = -2\pi i e^{-nl_n}\,[\mathbf{S}_1]_{12}\,, \qquad h_{n,n-1} = -\frac{2\pi i e^{nl_n}}{[\mathbf{S}_1]_{21}}.$$

it should be

$$h_{nn} = -2\pi i e^{nl_n}\,[\mathbf{S}_1]_{12}\,, \qquad h_{n,n-1} = -\frac{2\pi i e^{nl_n}}{[\mathbf{S}_1]_{21}}.$$

- Page 131, line 6. It should be "$\mathbf{M}_n(z)$ is analytic in $\mathbb{C}\setminus[\alpha_n,\beta_n]$", not "$\mathbf{M}_n(z)$ is analytic in $\mathbb{C}\setminus[\alpha_n,\beta_q]$".

- Page 135, equation (6.5.13). It should be $e^{in\omega}$, not $e^{-in\omega}$:

$$e^{-nG_n(iy/n)} = e^{in\omega}k_n(y)\frac{\sin\left(\frac{\pi y}{2\gamma}\right)}{\sin\left(y\left(\frac{\pi}{2\gamma}-1\right)\right)}\left(1+\mathcal{O}(n^{-1})\right),$$

6. Chapter 7

- Page 176, equation (7.6.19). There is a sign error in the formulas for j_{12}^{α} and j_{12}^{β}. They should read

$$j_{12}^{\alpha} = \frac{\mathrm{i}}{2}\left[3\big(\gamma^2(z)+\gamma^{-2}(z)\big)(\vartheta_{11}^2+\vartheta_{12}^2)+\big(\gamma^2(z)-\gamma^{-2}(z)\big)\vartheta_{11}\vartheta_{12}+6(\vartheta_{11}^2-\vartheta_{12}^2)\right],$$

and

$$j_{12}^{\beta} = -\frac{\mathrm{i}}{2}\left[3\big(\gamma^2(z)+\gamma^{-2}(z)\big)(\vartheta_{11}^2+\vartheta_{12}^2)+\big(\gamma^2(z)-\gamma^{-2}(z)\big)\vartheta_{11}\vartheta_{12}+6(\vartheta_{11}^2-\vartheta_{12}^2)\right].$$