

Errata for Lattice Sums Then and Now

June 23, 2015

1 Erratum – Section 1.3

Added May 14, 2015. In equations (1.3.2) and (1.3.3), q^2 should read q^4 .

Two lines after equation (1.3.10): the correct formula should read $Q_1 Q_2 = Q_1(q^{1/2})$, and not $Q(q^{1/2})$.

2 Erratum – Section 1.7

Added May 1, 2015. Equation (1.7.6) is erroneous, and should read (Zucker [145]):

$$\lim_{s \rightarrow 1} \left(S_0 - \frac{\pi}{s-1} \right) = 2\pi \left(\gamma - \log \left[\frac{\Gamma(1/4)^2}{2\pi^{3/2}} \right] \right).$$

3 Erratum – Section 6.1

Added May 14, 2015. In equation (6.1.4), the definition for $\bar{\chi}'(k, l)$ is erroneous; it should read

$$\bar{\chi}'(k, l) = \sum (-1)^n \left(\cos \frac{2\pi n}{3} \right) (kn + l) q^{(kn+l)^2}.$$

In Table 6.3, the Eulerian form for $\bar{\theta}'(6, 1)|q^{1/8}$ should read

$$q^{1/8}(1)^3 + 3q^{9/8}(9)^3.$$

In Table 6.4, the third last entry involving B is erroneous; there should be no p in the power. The correct form should read:

$$\sum (-1)^{m+n(n+1)/2} [3(4m+1)^2 + (6n+1)^2 + 12(2p+1)^2]^{-s} = 2 \times 16^{-s} B.$$

4 Erratum – Section 9.4

Added May 14, 2015. The first part of equation (9.4.14) should read

$$C^2 = -\frac{(A-B)(1-A-B)}{(1-A+B)^2}.$$

Equation (9.4.15) should read

$$J(C, D) = 2 \left[\sqrt{(1-D)^2 - C^2} + \sqrt{(1+D)^2 - C^2} \right]^{-1} \left(\frac{2}{\pi} \right)^2 K(k_+) K(k_-).$$

Equation (9.4.16) should read

$$\begin{aligned}
2k_{\pm}^2 &= 1 - \frac{1}{C} \left[\sqrt{(1-D)^2 - C^2} + \sqrt{(1+D)^2 - C^2} \right]^{-3} \\
&\times \left[(C+D)\sqrt{1-(C-D)^2} + (C-D)\sqrt{1-(C+D)^2} \right] \\
&\times \left\{ \pm 4C\sqrt{C^2 - D^2} + \left[\sqrt{(1+C)^2 - D^2} + \sqrt{(1-C)^2 - D^2} \right]^2 \right\}.
\end{aligned}$$

5 Erratum – Section 2.6 and Section 8.6

Added June 23, 2015. On page 109 and page 259, the right hand side of the expressions for $q(n, m)$ should have the roles of m and n swapped.

Consequently, the right hand side of equation (2.6.2) should contain $+\frac{\sqrt{3}}{3}$, not $-\frac{\sqrt{3}}{3}$. The expression for $h_2(s)$ on page 259 should contain an extra minus sign on the right hand side.

We would like to thank Qiang Luo (Renmin University) for pointing out the typos above.

6 Erratum – Foreword

Added June 23, 2015. On page xiii, the two equations for μ should read $-\mu$ on the left hand side.