A Mathematical Bridge

Errata

p. 6, 3rd line from bottom:
‘... use of the fact that 1 has no successor ...’
→‘... use of the fact that 1 is not the successor of any number ...’

p. 14, first bullet point:
$\left|\mathbb{R}\right| = \left|\mathbb{Z}\right| = \left|\mathbb{Q}\right| = \left|\mathbb{N} \times \mathbb{N}\right|$
→$\left|\mathbb{N}\right| = \left|\mathbb{Z}\right| = \left|\mathbb{Q}\right| = \left|\mathbb{N} \times \mathbb{N}\right|$

p. 17, displayed equation:
$T = \{s \in S \text{ such that } s \notin f(S)\}$
→$T = \{s \in S \text{ such that } s \notin f(s)\}$

p. 49, line 18:
‘where the positive remainder r is less than ...’
→‘where the non-negative remainder r is less than ...’

p. 52, line 17:
‘For example, the number $a = 1$ is an expansion for ...’
→‘For example, the number $a = 1$ provides an expansion for ...’

p. 70, second displayed equation:
The upper limits in the summations should be $n - 1$, not n.

p. 78, second line of proof:
‘... each of the partial sums $s_n = \sum_{n=1}^{n} a^i$
→‘... each of the partial sums $s_n = \sum_{i=1}^{n} a^i$

p. 83, line 8:
‘ $|s_{2n} - s_{2n-1}| = |a_n|$’
→‘$|s_{2n} - s_{2n-1}| = |a_{2n}|$’

p. 84, second displayed expression:
$|a_{n+1}/a_n| < k < 1 \quad \text{for all } n \geq n_0$
→$|a_{n+1}/a_n| < k < 1 \quad \text{for all } n > n_0$

p. 88, last displayed equation:
‘... $X = \text{Max}\{\rho(N+1), \rho(N+2), \ldots, \rho(n)\}$’
→‘... $X = \text{Max}\{\rho(1), \rho(2), \ldots, \rho(n)\}$’

p. 96, line 2:

'... value of the infinite rate of change...'

$\rightarrow$ '... value of the instantaneous rate of change ...'

p. 108, displayed equation:

$\log(x) \equiv \int_1^x \frac{1}{u}$

$\rightarrow \log(x) \equiv \int_1^x \frac{1}{u} du$

p. 114, first and third displayed equations and 7th line from bottom: the range of one summation should be

$$\sum_{r=0}^{\infty}$$

p. 135, third set of displayed equations:

$A_0 = \frac{1}{\pi} \int_{-\pi}^{\pi} x^2 dx = \frac{2\pi^2}{3}$

$\rightarrow A_0 = \frac{1}{2\pi} \int_{-\pi}^{\pi} x^2 dx = \frac{\pi^2}{3}$

p. 136:

In the figure, the first shift should read '$A + \pi^2/3$'

p. 139, second displayed equations: $\sin(z) = \frac{\exp(iz) - \exp(iz)}{2i}$

$\rightarrow \sin(z) = \frac{\exp(iz) - \exp(-iz)}{2i}$

p. 154, first displayed equation:

$... = \big(x_1 + x_2, y_1 + y_2, 2d + m(x_1 + x_2) + m(y_1 + ny_2)\big)$

$\rightarrow ... = \big(x_1 + x_2, y_1 + y_2, 2d + m(x_1 + x_2) + n(y_1 + y_2)\big)$

p. 158:

Note that the 'Proof' on this page is a 'Sketch proof'.

p. 163, first set of displayed equations:

$a_{n1}x_1 + a_{n2}x_2 + \cdots + a_{nn}x_n = y_m$

$\rightarrow a_{m1}x_1 + a_{m2}x_2 + \cdots + a_{mn}x_n = y_m$

p. 165, line 22:

'...the solutions of linear sets of equations are themselves vector spaces'

$\rightarrow$ '...the solution sets of linear sets of equations themselves form vector spaces'

p. 169, final displayed equations:

The determinant $= -1$

p. 202:

In Fig. 3.13 the second rotation should be acting on the vector $\begin{pmatrix} 0 \\ 1 \end{pmatrix}$

p. 212, line 18:

‘ ... some integer N’

→‘ ... some integer $N \neq 0$’

p. 215, final displayed equations:

‘$\Rightarrow x(e)h_i \in yh' \quad$ for some $h' \in H$’

→‘$\Rightarrow x(e)h_i = yh' \quad$ for some $h' \in H$’

p. 219:

‘Proof of first part’

→‘Sketch proof of the first part’

p. 224:

In Fig. 3.21 the glide symmetry involves reflecting about each *vertical* axis

p. 235, final displayed equation:

$$\Lambda = \sqrt{\tfrac{k^2}{m} - \tfrac{\epsilon^2}{4m^2}}$$

p. 243, line 13:

‘Alternatively, we could choose $a_0 = 1$ and $a_1 = 0 \ldots$ ’

→‘Alternatively, we could choose $a_0 = 0$ and $a_1 = 1 \ldots$’.

p. 243, line 22:

‘ ....it actually proves to be convenient to *define* $\sin t$ and $\cos t$ to be the two independent solutions ....’

→‘ ....it actually proves to be convenient to *define* $\sin \omega t$ and $\cos \omega t$ to be the two independent solutions ....’

p. 253, line 3:

‘This implies that the constants C are zero’

→‘This implies that the constants D_i are zero’

p. 256, first displayed equation:

The second line should be the difference, not the sum, of the two ratios

p. 264, third displayed equations:

‘(if $\nabla \neq 0$)’

→‘(if $\nabla f \neq 0$)’.

p. 303, line 5:

‘$\mathrm{Tr}(A)^2 - 4\mathrm{Tr}(A)\mathrm{Det}(A) \geq 0$’

→‘$\mathrm{Tr}(A)^2 - 4\mathrm{Det}(A) \geq 0$’

p. 306, second displayed equations:
$\dot{r} \sim -R_r r^2 - R_s r < 0$
$\rightarrow \dot{r} \sim -R_r r^2 - R_s rs < 0$

p. 325 Fig. 5.9:
Replace X with ω and f with X.

p. 326, line 1:
'The function $f(x)$ is called the *probability mass function...*'
→ 'The function $p(x)$ is called the *probability mass function...*'

p. 333, displayed equation:
'$B(r; p, n)$'
→ '$B(r; n, p)$'

p. 333, line 23:
'there ought to be np events'
→ 'there ought to be np_n events'

p. 338, final displayed equations:
'$\int_{n=0}^{\infty}$'
→ '$\int_{0}^{\infty}$'

p. 345, final displayed expression:
Replace with $n\left(1 + \frac{1}{2} + \frac{1}{3} + \cdots + \frac{1}{n}\right)$

p. 365, displayed equations:
$\ddot{\mathbf{r}} = \ddot{r}\mathbf{e_r} + 2r\dot{\mathbf{e}}_r + r\ddot{\mathbf{e}}_r$
$\rightarrow \ddot{\mathbf{r}} = \ddot{r}\mathbf{e_r} + 2\dot{r}\dot{\mathbf{e}}_r + r\ddot{\mathbf{e}}_r$

p. 371, line 17:
'... by noting that'
→ '... by noting that (for $m = 1$)'

p. 374, Fig. 6.8:
Replace c with C

p. 388, fourth displayed equation:
$x'^2 - c^2 t'^2 = (A^2 - c^2 C^2)(x^2 - c^2 t^2)$
$\rightarrow x'^2 - c^2 t'^2 = (A^2 - C^2)(x^2 - c^2 t^2)$

p. 391, final displayed equations:
'$\sinh\phi = \gamma v\,, \cosh\phi = \gamma$'
→ '$\sinh\phi = -\gamma v/c\,, \cosh\phi = \gamma$'

p. 392, 6th line from bottom:
‘with $\tanh\phi = U/c$ and $\tanh\phi' = U'/c$’
$\rightarrow$ ‘with $\tanh\phi = -U/c$ and $\tanh\phi' = -U'/c$’

p. 396, first displayed equation:
Replace with $P(v) = \big(-\gamma(v)\frac{v}{c}P_t(0), P_t(0)\gamma(v)\big)$

p. 396, second displayed equation:
Replace with $P(v) = \big(-m\gamma(v)v,\, m\gamma(v)c\big)$

p. 411, fourth displayed equations:
$\sum_{n-1}^{\infty}$
$\rightarrow \sum_{n=1}^{\infty}$

p. 413, final displayed equation:
$|\psi(\mathbf{x}_0, t)|^2 dV$
$\rightarrow |\psi(\mathbf{x}, t)|^2 dV$

p. 414, line 9 from bottom:
‘...whilst remaining in the state u’
$\rightarrow$ ‘...whilst remaining in the state u_λ’

p. 415
‘Proof: By definition of ΔA, ΔB and expectation...’
$\rightarrow$ ‘Proof: By definition of $\Delta\mathcal{D}_1$, $\Delta\mathcal{D}_2$ and expectation...’