Errata for the book

Low-dimensional geometry:
from euclidean surfaces to hyperbolic knots

A somewhat frustrating fact of life is that, however hard you try, it seems impossible to get rid of all misprints and minor mistakes in a math text. This one is no exception. I am very grateful to Maria Dyachkova, Laure Flapan and, in particular, the Annapolis group (Mark Kidwell, Mark Meyerson, Dave Ruth and Max Wakefield) for pointing out a large number of them. Here is a current list of misprints and corrections. A negative line number means that one should count from the bottom of the page.

Francis Bonahon

Page 5, line 3: $d(x, y) = |x - y|$.

Page 13, line -8: ... at the junction of γ and γ'.)

Page 15, line 3: $\varphi(x) = (\lambda x, \lambda y)$

Page 18, line 3: $\ldots = \left|\ln \dfrac{y_1}{y_0}\right|$.

Page 20, Figure 2.4: One needs to exchange $\varphi_2 \circ \varphi_1(P)$ and $\varphi_2 \circ \varphi_1(Q)$.

Page 24, line 13: ... plane is of one of the two types ...

Page 39, line -5: ... on opposite sides of b_{PQ}, in the sense ...

Page 27, line 18 $z = -\frac{d}{c}$.

Page 43, lines 9–10: ... with euclidean radius $y \sinh r$ and with euclidean center $(x, y \cosh r)$.

Page 43, line -13: $\text{Area}_{\text{hyp}}(D) = \displaystyle\iint_{\Phi(D)} \frac{4}{(1 - x^2 - y^2)^2}\, dx\, dy$.

Page 43, line -10: $\cdots = \iint_D f\big(\Phi(x,y)\big)\,|\det D_{(x,y)}\Phi|\,dx\,dy.$

Page 43, line -8: ... the determinant $\det D_{(x,y)}\Phi$ of ...

Page 43, line -7: ... differential map $D_{(x,y)}\Phi$.

Page 43, line -4: $P = (0,1) = \Phi^{-1}(0)$.

Page 45, line -9: $\|\vec{v}\|_{\mathrm{proj}} = \dfrac{d_{\mathrm{euc}}(A,B)}{2d_{\mathrm{euc}}(A,P)d_{\mathrm{euc}}(B,P)}\|\vec{v}\|_{\mathrm{euc}}$.

Page 45, line -2: $d_{\mathrm{proj}}(P,Q) = \dfrac{1}{2}\log\dfrac{d_{\mathrm{euc}}(A,Q)d_{\mathrm{euc}}(B,P)}{d_{\mathrm{euc}}(A,P)d_{\mathrm{euc}}(B,Q)}$.

Page 51, line 21: ... each plane Π'' orthogonal ...

Page 81, line 15: ... delimited by four edges, has no vertex ...

Page 83, line -4: ... by spherical isometries.

Page 84, line 14: ... of the product $X \times X$.

Page 90, line 2: ... restriction ...

Page 93, line 15: $\varphi_3(a,y) = (b, c+d-y)$.

Page 99, line -3: ... of h and k_y and ...

Page 110, lines -4 and -3: $\frac{\partial v}{\partial x} = -2\pi\,\mathrm{sech}\,t\,\sin(2\pi x)$, $\frac{\partial v}{\partial y} = 2\pi\,\mathrm{sech}^2\,t\,\cos(2\pi x)$, $\frac{\partial w}{\partial x} = 2\pi\,\mathrm{sech}\,t\,\cos(2\pi x)$, and $\frac{\partial w}{\partial y} = 2\pi\,\mathrm{sech}^2\,t\,\sin(2\pi x)$.

Page 111, line 3: $\displaystyle\int_{s_1}^{s_2} \big\|D_{z(s)}\rho\big(z'(s)\big)\big\|_{\mathrm{euc}}\,ds$

Page 163, line -12: $\{z \in \mathbb{H}^2;\, n \leqslant \mathrm{Re}(z) \leqslant n+1\}$

Page 163, line -6: ... the vertical half-lines $\mathrm{Re}(z) = a_n$ and $\mathrm{Re}(z) = a_{n+1}$, ...

Page 164, line -13: ... the vertical half-line of equation $\mathrm{Re}(z) = a_\infty$, ...

Page 164, line -9: ... along the line $\mathrm{Im}(z) = a_\infty$ ... [[Obviously, I am challenged when it comes to Im and Re !]]

Page 166, line 6: ... one easily sees that φ is bijective.

Page 166, line 7: ... that φ is actually ...

Page 183, Exercise 6.13: $U_0 = \varphi_2^{-1} \circ \varphi_4^{-1}(V_0)$

Page 188, line -6: $\leqslant \bar{d}'(\bar{P}, \bar{Q}) + \bar{d}'(\bar{Q}, \bar{R}) + 2\varepsilon$

Page 188, line -4: Since this holds for every $\varepsilon > 0$, ...

Page 191, line 6: Also, let $\widehat{Q}$ denote the point of $\widehat{B}_d(P, \varepsilon)$ corresponding to $Q \in B_d(P, \varepsilon)$.

Page 191, line 11: ... the quotient map $X \to \bar{X}$ is ...

Page 191, line 13: Let Q, $Q' \in B_d(P, \varepsilon)$.

Page 193, line 13: ... so that $\gamma_{i_j} = \gamma_j^{-1}$. As a consequence, the rule $j \mapsto i_j$ defines ...

Page 200, line 5: Since $Q \in \beta_{P_0 \gamma(P_0)}$, ...

Page 202, line 5: ... a group of isometries ...

Page 202, line -5: for every $\gamma \in \Gamma$, ...

Page 203, line 5: $\gamma(P_0) \in B_d(P_0, \varepsilon)$

Page 204, line 6: to construct an isometry

Page 236, line 4: $\varphi(z, u) = \left(\dfrac{az + b}{cz + d} - \dfrac{|cu|^2}{c(cz + d)(|cz + d|^2 + |cu|^2)}, \dots \right)$

Page 360, line 12: ... $f(x)$ is arbitrarily close to $f(x_0)$ ...

Page 360, line 13: ... sufficiently close to x_0.