Teichmüller Theory and Applications to Geometry, Topology, and Dynamics

Volume 1: Teichmüller Theory

(Second Printing)

Errata, complete as of March 25, 2017

We thank Ahmad Rafiqi, Samuel Roth, Xiaoguang Wang, and Alex Wright for their contributions to this list.

Errata

Page 21 Exercise 1.8.11: Part 1 should read "Two nonidentity Möbius transformations commute if and only if they have the same fixed points, or are commuting involutions each interchanging the fixed points of the other." (As the statement currently stands, $f(z) = -z$ and $g(z) = 1/z$ are a counterexample.)

Page 267 [new March 25, 2017] Equation 6.6.7: The second term should be "$(1 + t\partial\xi + o(t))$", not "$(1 + \partial\xi + o(t))$".

Page 268 Line 3: "$\overline{\partial}\xi = 0$" should be "$\overline{\partial}\xi = \nu$".

Page 294 [new March 25, 2017] Proposition 6.12.4: in the second line of part 2, "a an open subset" should be "an open subset".

Page 385 [new Jan. 22, 2016] In Definition A7.2.1, after "given by the formula" the subscript and superscript on ρ (after the sum) should be exchanged; it should be

$$\sum_{i=0}^{k+1}(-1)^i \rho^{U_0\cap\cdots\cap U_{k+1}}_{U_0\cap\cdots\widehat{U}_i\cdots\cap U_{k+1}}$$

not

$$\sum_{i=0}^{k+1}(-1)^i \rho^{U_0\cap\cdots\widehat{U}_i\cdots\cap U_{k+1}}_{U_0\cap\cdots\cap U_{k+1}}$$

Our convention (equation A7.1.1) is that when $V \subset U$, we write ρ_U^V, not the reverse: the small set goes on top. On top, we are taking the intersection of more sets, so it is smaller.

Page 392 Third paragraph of Section A7.4, next to last line: $H^1(X, \mathcal{O}_X^*)$, not $H(X, \mathcal{O}_X^*)$

Page 392 Equation A7.4.1:

$$\varphi_{U_1}^{-1} \circ \varphi_{U_2} : \mathbb{C} \times (U_1 \cap U_2) \to \mathbb{C} \times U_1$$

should be

$$\varphi_{U_1}^{-1} \circ \varphi_{U_2} : (U_1 \cap U_2) \times \mathbb{C} \to U_1 \times \mathbb{C}$$

Equation A7.4.2:

$$\varphi_{U_1}^{-1} \circ \varphi_{U_2}(z, x) = \big(M_{U_1,U_2}(x)z, x\big)$$

should be

$$\varphi_{U_1}^{-1} \circ \varphi_{U_2}(x, z) = \big(x, M_{U_1,U_2}(x)z\big)$$

Notes and amplifications

Pages 267 and 268 [new March 25, 2017] Proof of Lemma 6.6.3: A reader asked, "why is $\ker[D\Phi_S(\tau)]$ spanned by tangent vectors of curves in $\Phi_S^{-1}(\Phi_S(\tau))$? Answer: by Theorem 6.5.1, part 2, $\Phi_S^{-1}(\Phi_S(\tau))$ is a manifold, and the tangent space is always spanned by tangent vectors to curves in the manifold. This depends on Φ_S being a split submersion; see Proposition A5.6 and the discussion page 363 following Definition A5.7.

The reader also asked, how is the assumption that ξ vanishes on $\mathbb{R}$ being used? Answer: It is used to say (in equation 6.6.8) that when $z \notin \mathbf{H}$, i.e., when $z \in \mathbf{H}^*$, then

$$f^{t\widehat{\overline{\partial}\xi}}(z) = z + o(t).$$

(This also uses Proposition 4.7.6.)