Correction to "Compact Quotients with Positive Algebraic Dimensions of Large Domains in a Complex Projective 3-space"

Masahide Kato

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1. p.1322 $\uparrow$ 14. A proof seems to be required when we claim that $\Omega(\Gamma)$ contains lines for any type(L) group. Therefore we consider only type(L) groups whose $\Omega(\Gamma)$ contains lines. With this additional condition, no changes are required for the rest of the arguments.

2. p.1340 $\downarrow$ 8. "compact" should be deleted. Here, before giving the the statement of Lemma 6, we have to assume that there are a compact reduced irreducible surface $\bar{S}$ and a divisor $D \subset \bar{S}$ such that $S = \bar{S} \setminus D$. In Lemma 6, by a curve C on S, we mean the complement $C = \bar{C} \setminus (\bar{C} \cap D)$ of a compact curve $\bar{C}$ on $\bar{S}$.

3. p.1340 $\downarrow$ 11. "a properly discontinuous infinite group Γ of holomorphic automorphisms of S is acting freely on Ω_S and C and that ..." should read "an infinite group Γ of holomorphic automorphisms of $\bar{S}$ is acting freely and properly discontinuously on Ω_S and $C \cap \Omega_S$, and that ...".

4. p.1342 $\downarrow$ 4. Corollary 3 should be deleted.

5. p.1344 $\downarrow$ 10. The proof of Proposition 5 contained an error. In the course of the proof, the condition that C is a component of B was forgotten. We shall give a new proof here.

   Proposition 5 *If X is not an L-Hopf manifold, then $B \subset \Lambda$.*

   Proof. Suppose that there is an irreducible curve B_0 of B such that $B_0 \not\subset \Lambda$. Since B is Γ-invariant, and since it has only finite number of irreducible components, there is a subgroup Γ_1 of Γ with finite index such that B_0 is Γ_1-invariant. Note that B_0 is a rational curve, since B_0 admits the infinite automorphism group $\Gamma_1|C$. If B_0 has singular points or intersections with other curves in B, then the group is an elementary Kleinian group. Hence $\Gamma_1 \simeq \Gamma_1|B_0$ contains an abelian subroup of rank ≤ 2. This implies that X is an L-Hopf manifold by Propositions 2 and 3. Hence we can assume that $B = B_0$ and that B is a non-singular rational curve.

By Lemma 7, choose any $t \in \mathbf{P}^1 \setminus \mathcal{E}$ such that the Hausdorff dimension of $\Lambda_t \setminus B$ is zero. Put $\pi_t = \pi|\Omega_t$. Hence the envelope of holomorphy of $\Omega_t \setminus B$ over $S_t \setminus B$ coincides with $S_t \setminus B$. By a theorem of Ivashkovich[Iv], the projection $\pi_t : \Omega_t \setminus B \to X_t$ extends holomorphically to $(S_t \setminus B) \setminus E \to X_t$, where E is a countable set of isolated points on $S_t \setminus B$. Since π_t cannot extend accross the points of Λ_t, this implies $\Lambda_t \setminus B \subset E$.

Note that $\Omega_t = (\Omega_t \setminus B) \cup (B \setminus \Lambda_t)$ and that $B \setminus \Lambda_t$ is a non-empty open subset of B. We can choose an ample curve D on S_t such that $D \cap B$ avoids $E \cup \Lambda_t$. Then, applying Ivashkovich's theorem again to $\pi_t : \Omega_t \setminus D \to X_t$, we see that π_t extends holomorphically to $(S_t \setminus D) \setminus E'$, where E' is a countable set of isolated points on the Stein surface $S_t \setminus D$. This implies that Λ_t is a set of countable isolated points on S_t, and hence Λ_t consists of one or two points by the theorem of ends by Hopf. The former doesn't occur, since compact complex subvariety punctured at one point cannot cover a compat complex surface. If the latter, $\Gamma_1 \simeq \mathbf{Z}$ and X is an L-Hopf manifold. ∎

6. p.1346 $\downarrow 8 - 9$. "by Corollary 3" should read "by Lemma 6 and Proposition 3".

References

[H] Hopf, H. : Enden offener Räume und unendliche diskontinuierliche Gruppen, Comm. Math. Helv., 16 (1943-44) 81-100.

[Iv] Ivashkovich, S. M. : Extension properties of meromorphic mappings with values in non-Kähler complex manifolds, Ann. of Math., 160(2004), 795-837.

[K] Kato, Ma. : Compact Quotients with Positive Algebraic Dimensions of Large Domains in a Complex Projective 3-space, J. Math. Soc. Japan, 62(2010), 1317-1371