Publ. RIMS, Kyoto Univ.
17 (1981), 981–982

Supplement to 'Weakly 1-Complete Manifold and Levi Problem'

By

Takeo OHSAWA*

In the proof of Theorem 2.1 in [3] there is a gap which seems difficult to be filled by an elementary argument. Here we shall fill it with the aid of Cartan's theorem and Norguet-Siu's theorem.

Let the notations be as in Theorem 2.1 [3]. In the proof, we have shown that, by induction, for any $x \in \partial X_c$, for any hyperplane H in $\mathbb{P}^n$, and for any sequence $\{x_k\}$ in $\pi^{-1}(H) \cap X_c$ such that $x_k \to x$, there is a holomorphic function f on X_c such that

$$\lim_{x_k \to x} |f(x_k)| = \infty.$$

But it is too rude to conclude only from this fact that X_c is holomorphically convex. We fill this gap as follows: By the same argument, using the Nakano's vanishing theorem and the induction, we can prove that for any two points x, $y \in X_c$, either x and y are contained in a connected compact analytic subset of X_c, or there is a holomorphic function on X_c which separates them. Let R be the equivalence relation defined on X_c by the following rule: $x \sim x'$ if and only if $f(x) = f(x')$ for any holomorphic function f on X_c. Then the fibers, the equivalence classes of R, are compact and φ is constant on any fiber. Therefore R is a proper relation in Cartan's sense. Hence, by Main Theorem in [1], there is an analytic space $\hat{X}_c$ and a proper surjective holomorphic map p from X_c to $\hat{X}_c$. Clearly, $1/(c - \varphi \circ p^{-1})$ is a well defined continuous exhaustion function on $\hat{X}_c$ which is plurisubharmonic on the regular points of $\hat{X}_c$.

Therefore, applying the theorem of Norguet-Siu (cf. Theorem 2 in [2]), we obtain the Steinness of $\hat{X}_c$, whence follows the holomorphical convexity of X_c. The same argument can be applied to prove the holomorphical convexity of

Received January 23, 1981.

* Research Institute for Mathematical Sciences, Kyoto University, Kyoto 606, Japan.

the weakly 1-complete domains over hyperquadrics, complete intersections of type (2, 2), and hypercubics.

References

[1] Cartan, H., Quotients of complex analytic spaces, *Contributions to function theory*, Tata Inst., Bombay, (1960), 1–15.
[2] Norguet, F. and Siu, Y. T., Holomorphic convexity of spaces of analytic cycles, *Bull. Soc. math. France*, **105** (1977), 191–223.
[3] Ohsawa, T., Weakly 1-complete manifold and Levi problem, *Publ. RIMS, Kyoto Univ.* **17** (1981), 153–164.