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HOLOMORPHIC AUTOMORPHISMS AND CANCELLATION THEOREMS

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§1. Statement of the result

In this note, complex analytic spaces are always assumed to be reduced and connected.

Let X be a complex analytic space of positive dimension and A a complex analytic subvariety of X. We call A a *direct factor* of X if there exist a complex analytic space B and a biholomorphic mapping $f: A \times B \to X$ such that, for some $b \in B$, $f(a, b) = a$ on A, and a complex analytic space X to be *primary* if X has no direct factor, not equal to X itself, of positive dimension. By a *primary decomposition* of X, we mean a cartesian product $X_1 \times X_2 \times \cdots \times X_n$ of primary complex analytic spaces $X_1, X_2, \cdots, X_n$ of positive dimension, such that $X_1 \times X_2 \times \cdots \times X_n$ is biholomorphic to X. We shall give examples of primary decomposition in § 7.

Now, consider the following condition (C) for an arbitrary complex analytic space X:

(C) Given arbitrarily a complex analytic space Y and a holomorphic mapping ϕ: $Y \times X \to X$, if $\phi(y_0, \cdot)$: $X \to X$ is a biholomorphic mapping for some $y_0 \in Y$ then

$$\phi(y, \cdot) = \phi(y_0, \cdot) \qquad \text{on } X \text{ for every } y \in Y\,.$$

We denote by C the collection of all complex analytic spaces which satisfy the condition (C).

Throughout this note we are concerned with two classes of complex analytic spaces, (1) hyperbolic complex analytic spaces in the sense of Kobayashi [4] and (2) compact complex analytic spaces of general type (see the following, extracted from Ueno [10]).

Let M be a compact complex analytic manifold with the canonical line bundle $K(M)$. The Kodaira dimension $\kappa(M)$ of M is equal to an in-

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