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ALGEBRAIC DEGENERACY THEOREM FOR HOLOMORPHIC MAPPINGS INTO SMOOTH PROJECTIVE ALGEBRAIC VARIETIES

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§1. Introduction

The famous Picard theorem states that a holomorphic mapping f: $C \to P^1(C)$ omitting distinct three points must be constant. Borel [1] showed that a non-degenerate holomorphic curve can miss at most $n+1$ hyperplanes in $P^n(C)$ in general position, thus extending Picard's theorem ($n=1$). Recently, Fujimoto [3], Green [4] and [5] obtained many Picard type theorems using Borel's methods for holomorphic mappings. In [3] and [4], they proved that a holomorphic mapping f: $C^m \to P^n(C)$ omitting any $n+2$ hyperplanes in general position must have the image lying in a hyperplane, especially Green showed that the same result holds under the condition that hyperplanes are distinct. Furthermore, in [5] he proved that a holomorphic mapping f of C^m into a projective algebraic variety V of dimension n omitting $n+2$ non-redundant hypersurface sections must be algebraically degenerate. On the other hand, in the equidimensional case, Carlson and Griffiths [2] obtained a generalization of Nevanlinna's defect relation for holomorphic mappings of C^n into an n-dimensional smooth projective algebraic variety V. By their results, a holomorphic mapping f: $C^n \to P^n(C)$ having the Nevanlinna's deficiency $\delta(D)=1$ for a hypersurface $D \subset P^n(C)$ of degree $\geqq n+2$ with simple normal crossings, must be degenerate in the sence that $J_f \equiv 0$ on C^n. While, Noguchi [6] obtained an inequality of the second main theorem type for holomorphic curves in algebraic varieties, thus a holomorphic curve f in an algebraic variety V which has the Nevanlinna's deficiency $\delta(\Sigma)=1$ for hypersurfaces Σ with some conditions in V must be algebraically degenerate. In this paper, we shall show that for $n+2$ ample divisors $\{D_j\}_{j=1}^{n+2}$ with normal crossings, any holomorphic mapping of C^m into an n-dimensional smooth projective algebraic variety

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