

and  $V_C \sim 6W$ ).  $\Rightarrow$  The latter component,  $I_P$ , occurs with multiplicity 2.

" $\pi$ " Comment on P177, on normal variety.

Since  $\varphi^*(H_{V'}) = H_V$ ,

$$\begin{array}{ccc} [H] & \longrightarrow & [H] \\ \downarrow & & \downarrow \\ V & \xrightarrow{\varphi} & V' \end{array}$$

$\Rightarrow$  Given any section  $\tau$  on  $V'$ , then since  $V'$  is normal, we may consider  $\tau \in H^0(\mathbb{P}^n, \mathcal{O}(H))$ .

$\Rightarrow \varphi^*\tau$  is a section of  $[H]|_V$ .  $\Rightarrow$  Again, since  $V$  is normal,  $\varphi^*\tau = \sigma \in H^0(\mathbb{P}^n, \mathcal{O}(H))$ .  $\Rightarrow$  Since  $\varphi$  is biholomorphic, and if  $\tau_i \neq \tau_j$  on  $V'$ , then  $\varphi^*\tau_i \neq \varphi^*\tau_j$ ,  $\varphi^*: H^0(V', \mathcal{O}(H)) \longrightarrow H^0(V, \mathcal{O}(H))$  is isomorphic.

Assume that  $V$  is nondegenerate in  $\mathbb{P}^n$ , and  $V'$  is nondegenerate.  $\Rightarrow$  Let  $\{\sigma_0, \dots, \sigma_n\}$  be the standard basis for  $H^0(\mathbb{P}^n, \mathcal{O}(H))$ , i.e.  $\sigma_i([X_0, \dots, X_n]) = [0, 0, \dots, X_i, 0, \dots, 0]$ . Let  $H^0(\mathbb{P}^n, \mathcal{O}(H)) = \langle \sigma_0, \dots, \sigma_n \rangle = \langle \tau_0, \dots, \tau_n \rangle$  and

$$\varphi^* \tau_i = \sigma_i.$$

$$\Rightarrow \varphi^* \tau_i = \sigma_i = a_{ij} \sigma_j^\circ = \tau_i \circ \varphi = b_{ik} \sigma_k^\circ \circ \varphi = a_{ij} \sigma_j^\circ$$

$$\Rightarrow B \varphi(X) = A X, \quad X = (X_0, \dots, X_n) \quad \varphi(X_0, \dots, X_n)$$

$$= (\varphi_0(X_0, \dots, X_n), \dots, \varphi_n(X_0, \dots, X_n)).$$

$\Rightarrow \varphi(X) = B^{-1} A X \Rightarrow \varphi$  can be extended to  $\mathbb{P}^n$ . In case  $V$  is degenerate in  $\mathbb{P}^n$ , we may