those n-points. $\Rightarrow$ $a_0 Z_0 + \cdots + a_n Z_n = 0$ defines a hyperplane H in $\mathbb{P}^n$. $\Rightarrow$ By P64, $V \cap H$ is a curve, for, $V \cap H$ is an analytic subvariety of $\mathbb{P}^n$, $\Rightarrow$ $\dim(V \cap H) = 1, 0$

① $\dim(V \cap H) = 1$, O.K.

② $\dim(V \cap H) = 0$ $\Rightarrow$ $V \cap H$ = Set of discrete points

$\Rightarrow$ $\deg V \geq n$ Contradiction to the assumption that $\deg V \leq n-1$.

$\Rightarrow$ $\dim(V \cap H) = \dim V$. $\Rightarrow$ By P77. Th. 1. K (Whitney, Complex Analytic Variety), $V \subset H$.

93. 1. 2.

Turning to the general case, we have to show that the generic hyperplane section $V \cap H$ of an irreducible non-degenerate variety V of dimension ≥ 2 is again irreducible and nondegenerate in H. The latter part is clear: the condition that $H \cap V$ be degenerate is a closed one on $H \in \mathbb{P}^{n*}$, and since V itself is nondegenerate, we can find n points of V spanning a hyperplane, so not every hyperplane section of V can be degenerate.

⌈ Choose a point $p_0 \in V$. $\Rightarrow$ $\exists$ a hyperplane H_1 containing p_0. $\Rightarrow$ By nondegeneracy of V in $\mathbb{P}^n$, $\exists$ $p_1 \in V$ s.t $p_1 \notin H_1$. $\Rightarrow$ p_1 & p_0 are linearly independent. Continue this process, then we get $p_0, p_1, \cdots p_{n-1} \in V$ which are linearly independent. $\Rightarrow$ The set $\{p_0, p_1 \cdots p_{n-1}\}$ span a hyperplane H.

Consider $V \cap H$. $\Rightarrow$ $V \cap H$ contains a set of n-linearly independent points $\{p_0, p_1, \cdots p_{n-1}\}$ which can not be contained in any $(n-2)$-plane (which is a hyperplane of H). $\Rightarrow$