is thus holomorphic in a nbd of $p$ and vanishes exactly on $\overline{V_i}$. Q.E.D.

⌈ By Pf, $\sigma_1(z'), \cdots \sigma_k(z')$ are holomorphic and since all $z_n$'s are in $\overline{\Delta}$, they are bounded. $\Rightarrow$ By Riemann extension theorem (p9), $\sigma_1(z'), \cdots \sigma_k(z')$ are extended to $\Delta'$. $\Rightarrow$ The function

$$f_i(z) = z_n^k + \sigma_1(z') z_n^{k-1} + \cdots + \sigma_k(z')$$

is holomorphic in a nbd of $p'$.

$\Rightarrow \{f_i(z)=0\} \supset V_i \cap (\Delta - (g=0)) \subset \Delta$

$\Rightarrow \{f_i(z)=0\}$ is closed $\overset{\text{in } \Delta}{\vee} \Rightarrow \{f_i(z)=0\} \supset \overline{V_i}$

$\Rightarrow \{f_i(z)=0\} = \overline{V_i} \cap \Delta$, since $\{f_i(z)=0\} \cap (\Delta - (g=0)) = V_i \cap (\Delta - (g=0))$

Redundant! $\overline{V_i}$ (in $\Delta$) $\subset \{f_i(z)=0\} \cap \Delta$, $\{f_i(z)=0\} \cap (\Delta - (g=0)) \subset \overline{V_i} \cap \Delta$.

$\Rightarrow \{f_i(z)=0\} \cap \Delta \subset \overline{V_i} \cap \Delta$ since $\Delta - (g=0)$ is open dense, i.e., $\{g=0\}$ is a set of measure 0. ⌋

We take the dimension of an irreducible analytic variety $V$ to be the dimension of the complex manifold $V^*$; we say that a general analytic variety is of dimension $k$ if all of its irreducible components are.

A note: if $V \subset M$ is an analytic subvariety of a complex manifold $M$, then we may define the tangent cone $T_p(V) \subset T_p'(M)$ to $V$ at any point $p \in V$ as follows: if $V = (f=0)$ is an an-