$$V \cap U_{0 (z_0 \neq 0)} \xrightarrow{f_0'} \mathbb{C}$$

$$[z_0, \cdots z_n] \longmapsto a_{10} + a_{11}\frac{z_1}{z_0} + a_{12}\frac{z_2}{z_0} + \cdots + a_{1n}\frac{z_n}{z_0}$$

$$\downarrow$$

$$\mathbb{C}^n$$

$$\left(\frac{z_1}{z_0}, \cdots \frac{z_n}{z_0}\right) = (\omega_1, \cdots, \omega_n) \longrightarrow a_{10} + a_{11}\omega_1 + a_{12}\omega_2 + \cdots + a_{1n}\omega_n$$

$$\nabla f_0' = (a_{11}, a_{12}, \cdots a_{1n})$$

$$\begin{vmatrix} a_{11}, & a_{12}, & \cdots & a_{1n} \\ a_{21}, & a_{22}, & \cdots & a_{2n} \\ \vdots & & & \\ a_{n-k,1}, & a_{n-k,2} & & a_{n-k,n} \\ & \nabla f_1 & & \\ & \vdots & & \\ & \nabla f_k & & \end{vmatrix} = 0$$

$$\begin{vmatrix} a_{10}, & a_{12}, & \cdots & a_{1n} \\ a_{20}, & a_{22}, & \cdots & a_{2n} \\ \vdots & & & \\ a_{n-k,0} & a_{n-k,2} & \cdots & a_{n-k,n} \\ & \nabla f_1 & & \\ & \vdots & & \\ & \nabla f_k & & \end{vmatrix} = 0$$

In other words, $\begin{pmatrix} a_{1,0}, & a_{11} & \cdots & a_{1n} \\ a_{2,0} & a_{21} & \cdots & a_{2n} \\ \vdots & \vdots & & \vdots \\ a_{n-k,0} & a_{n-k,1} & & a_{n-k,n} \end{pmatrix}$ must

satisfy some holomorphic maps.