bining with Sard's theorem. we can find an arc $\gamma(t)$ s.t $\gamma(t) \subset B(0, \frac{\delta}{2})$ for $t \neq 0$, $0 < t \leq \epsilon$. More precisely, $f(K) \cap B(0, \frac{\delta}{2})$ is open and dense, moreover path-connected, since $f(K) \cap B(0, \frac{\delta}{2})$ is an algebraic variety by the proper mapping theorem (Let C be a compact subset in $B(0, \frac{\delta}{2})$. $f^{-1}(C) \subset U$ and $f^{-1}(C) \subset V \subset \bar{V} \subset U \Rightarrow f^{-1}(C)$ compact $\Rightarrow f|_{f^{-1}(B(0,\frac{\delta}{2}))}$ is proper and $f(K) \cap B(0, \frac{\delta}{2})$ has codimension$_{\mathbb{R}} \leq 2$)

~~For any fixed point $z_0 \in f(K)^c \cap B(0, \frac{\delta}{2})$, we can draw a curve $\gamma(t)$ s.t $\gamma(0) = z_0$, $\gamma(1) = z_1$ $0 \leq t \leq 1$. $|z_1| < |z_0|$. If $\exists$ no curve $\gamma(t)$ s.t $\gamma(0) = z_0$, $\gamma(1) = 0$, and $\gamma(t) \in f(K)^c \cap B(0, \frac{\delta}{2})$ for $0 \leq t < 1$. $\Rightarrow \exists\ \eta > 0$. s.t $B(0, \eta) \subset f(K)$, which is impossible. $\Rightarrow$ We have an arc $\gamma(t)$ s.t. $\gamma(t) \in f(K)^c \cap B(0, \frac{\delta}{2})_{0 \leq t < 1}$. $\gamma($~~

Since $f(K) \cap B(0, \frac{\delta}{2})$ is an algebraic variety, $\exists$ an open set $\mathcal{O}$ s.t $\bigcap_j (g_j = 0) = \mathcal{O} \cap f(K) \cap B(0, \frac{\delta}{2})$
$\Rightarrow \exists$ a lot of lines from the origin which lie in $f(K)^c \cap B(0, \frac{\delta}{2})$ except the origin.

Now we use the existence of good perturbations and continuity method to prove the

Transformation Law. Suppose $f = (f_1, \cdots f_n)$ and $g = (g_1 \cdots g_n)$ give holomorphic maps $f, g : \bar{U} \longrightarrow \mathbb{C}^n$ with $f^{-1}(0) = \{0\} = g^{-1}(0)$. Suppose moreover that

$$g_i(z) = \sum_j a_{ij}(z) f_j(z)$$