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The zero cycle is effective in case all $m_\nu \geq 0$. The degree of a zero cycle is given by

$$\deg(P) = \sum_\nu m_\nu .$$

Suppose now that $f: U \longrightarrow \mathbb{C}^n$ is a holomorphic mapping with $f^{-1}(0) = \{0\}$. We define the multiplicity of f at the origin to be the topological degree d of $f: U^* \longrightarrow \mathbb{C}^n - \{0\}$. We then say that the equation

$$f(z) = 0$$

has the origin as a solution of multiplicity d.

Now, according to the continuity property (C) of the local intersection numbers, for $\|W\| < \varepsilon$ the equation

$$f(z) = W$$

will have exactly d solutions $z_\nu(W)$ close to the origin. Of course, some of the $z_\nu(W)$ may be repeated.

Pf Consider $g(z, W) = f(z) - W$. Since $\|f(z)\| \geq \epsilon$ on ∂U, for $\|W\| < \delta$, δ sufficiently small, $\|f(z) - W\| \geq \frac{\epsilon}{2}$ on ∂U.
$\Rightarrow$ For each W with $\|W\| < \delta$, $\{f(z) = W\}$ is a finite set of isolated points. $\Rightarrow$ By continuity principle (C) P664, P663 & P666
$\#\{f(z) = W\} =$ constant. In our case, $\#\{f(z) = W\} = d$ //

Using the zero-cycle notation, we write

$$f^{-1}(W) = \sum_\nu z_\nu(W) .$$

Let $W = \{\|W\| < \varepsilon\}$ and redefine $U = f^{-1}(W)$. Then we claim that the holomorphic mapping

$$f: U \longrightarrow W$$

has the following properties: It is surjective, open and