$$\Rightarrow \quad \begin{tikzcd} \omega \in H^0(U^*, \Omega^n) \arrow[r, "\cong"] \arrow[d, "\text{res.}"] \arrow[rr, bend left, phantom] & H^{n,0}_{\bar\partial}(U^*) \ni \eta_\omega \arrow[d, "\text{restriction}"] \\ \omega|_{U_p} \in H^0(U_p^*, \Omega^n) \arrow[r, "\cong"] & H^{n,0}_{\bar\partial}(U_p^*) \ni \eta_\omega|_{U_p} \end{tikzcd}$$

$U_p^* = U^* \cap U_p.$

$\Rightarrow$ $\eta_\omega|_{U_p}$ is a Dolbeault representative of $[\omega|_{U_p}] \in H^{n-1}(U_p^*, \Omega^n) = H^0(U_p, \Omega^n(D))$.

$$\int_{\partial U_p(\epsilon)} \eta_\omega \overset{(=\eta_\omega|_{U_p})}{=} Res_p(\omega|_{U_p}) \quad \Rightarrow \text{ Theorem is proved.}$$

Of course, the essential step here is to convert the original n-dimensional path of integration into one of dimension $2n-1$ so that Stokes' theorem may be utilized.

The Transformation Law and Local Duality

We now explore what might be called the functorial aspects of the residue symbol. To begin with we shall use the residue theorem to derive one of our main technique, the method of continuity. Suppose that $f_t = (f_{t1}, \cdots, f_{tn})$ are n-functions of (z, t), holomorphic for z in a nbd of $\overline{U}$ where U is a small ball around the origin in $\mathbb{C}^n$, and continuous in a parameter variable $0 \le t \le \delta$. We set $f = f_0$, and for a form