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$$d\left(\frac{dz_J}{z_J}\right) = 0 \quad \text{and} \quad \frac{dz_J}{z_J} \text{ is not exact}$$

$$\Rightarrow \quad \frac{dz_J}{z_J}\text{'s form a basis for } H^q(U^*).$$

$$\mathcal{H}^q(\Omega^*(\log D))_p$$

$$= \lim_{U \ni p} \frac{\ker\{d : \Omega^q(\log D)(U) \longrightarrow \Omega^{q+1}(\log D)(U)\}}{d\,\Omega^{q-1}(\log D)(U)}$$

$$\begin{array}{c} \rotatebox{90}{$\in$} \\ \dfrac{dz_J}{z_J} + d\,\Omega^{q-1}(\log D)(U) \\ \Big\downarrow \\ \dfrac{dz_J}{z_J} \in H^q(U^*) = \mathcal{H}^q(\mathcal{A}^*(*D))_p \end{array}$$

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What must be verified is:

(*) Let φ be a closed meromorphic p-form on the poly cylinder such that φ has poles on D and $\varphi = 0$ in $H^p_{DR}(P^*(k,n))$. Then $\varphi = d\eta$, where η is meromorphic with poles on D. If φ is in the log complex and $\varphi = 0$ in $H^p_{DR}(P^*(k,n))$, then $\varphi = d\eta$ for a form η in the log complex.

「 We want to show $\mathcal{H}^p(\Omega^*(*D))_x \cong \mathcal{H}^p(\mathcal{A}^*(*D))_x$ and $\mathcal{H}^p(\Omega^*(\log D))_x \cong \mathcal{H}^p(\mathcal{A}^*(*D))_x$.