

Sabemos que:

$$\partial(\Omega^{p,q}) \in \Omega^{p+1,q}$$

$$\bar{\partial}(\Omega^{p,q}) \in \Omega^{p,q+1}$$

Por otro lado $d^2 = 0$ y entonces:

$$\alpha \in \Omega^{p,q}$$

$$0 = d^2 \alpha = (\partial + \bar{\partial})(\partial + \bar{\partial})\alpha$$

$$= \partial^2 \alpha + (\partial \bar{\partial} + \bar{\partial} \partial)\alpha + \bar{\partial}^2 \alpha$$

$$\Omega^{p+2,q} \oplus \Omega^{p+1,q+1} \oplus \Omega^{p,q+2}$$

Podemos hablar de cohomología:

$\alpha \in \Omega^{p,q}$ es ∂ -cerrada

$$\Leftrightarrow \partial \alpha = 0$$

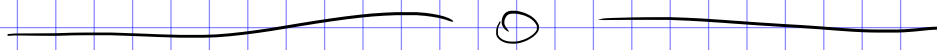
y es $\bar{\partial}$ -cerrada

$$\Leftrightarrow \bar{\partial} \alpha = 0$$

α ∂ -exacta $\Leftrightarrow \exists \beta \ni \partial \beta = \alpha$

y $\bar{\partial}$ -exacta $\Leftrightarrow \exists \beta \ni \bar{\partial} \beta = \alpha$

$\therefore \mathcal{D}^2 = 0$: \mathcal{D} -exacta \Rightarrow \mathcal{D} -cerrada
 $\bar{\mathcal{D}}^2 = 0$: $\bar{\mathcal{D}}$ -exacta \Rightarrow $\bar{\mathcal{D}}$ -cerrada



En un paso de (5) + (6) \Rightarrow (7)

$$g_{jk}(z) = h_{jk}(w(z))$$

y se usa que $z_0 \mapsto 0$.