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:

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

$$\underset{h+2}{0} = d^2\alpha = (\partial + \bar{\partial})(\partial + \bar{\partial})\alpha$$
$$= \partial^2\alpha + (\partial\bar{\partial} + \bar{\partial}\partial)\alpha + \bar{\partial}^2\alpha$$
$$\Omega^{p+2,q} \oplus \Omega^{p+1,q+1} \oplus \Omega^{p,q+2}$$

Podemos hablar de cohomología:

$\alpha \in \Omega^{p,q}$ es ∂-cerrada $\iff \partial\alpha = 0$

y es $\bar{\partial}$-cerrada $\iff \bar{\partial}\alpha = 0$

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

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

$\therefore$ $\partial^2 = 0$: ∂-exacta $\Rightarrow$ ∂-cerrada

$\bar{\partial}^2 = 0$: $\bar{\partial}$-exacta $\Rightarrow$ $\bar{\partial}$-cerrada

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En un paso de $(\bar{5}) + (6) \Rightarrow (7)$

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

y se usa que $z_0 \longmapsto 0$.