$$\Rightarrow \frac{\partial}{i} \omega = \sum \left(\delta_{ij} + \sum_k (a_{ijk} \omega_k + a_{ij\bar{k}} \bar{\omega}_k + b_{jki} \omega_k + \overline{b_{ikj}} \bar{\omega}_k) \right)$$

$$\wedge\, d\omega_i \wedge d\bar{\omega}_j + [1].$$

$\Longrightarrow \quad a_{ijk} = -b_{jki} \quad \Rightarrow \quad b_{jki} = -a_{ijk} = -a_{kji} = b_{jik}$

$\Downarrow$ This satisfies the normalization.

and $\overline{b_{ikj}} = -\overline{a_{jik}} = -a_{ij\bar{k}}$

so that the coordinate change does in fact satisfy the condition (*). Q.E.D. 」

「Remark : I think. [2] should be [1] or [2] means that. the term vanishes up to order 1 not order 2.

See Wells. (P80. lemma 2.3 Differential Analysis on Complex Manifolds.)

$\Rightarrow \quad h(z) = I + O(|z|^2)$

big o

Here $O(|z|^2)$ means that $|O(|z|^2)| \leq C|z|^2$

big O

for some $C > 0$.

$o(|z|^2)$ means that $\lim_{|z|\to 0} \frac{o(|z|^2)}{|z|^2} = 0$

small o

See Hardy. (P164. §9. Symbols O.o A course of Pure Mathematics). 」

Another way of expressing this condition that is useful in computation is to say that for each point $z_0 \in M$, we can find a unitary coframe $\varphi_1 \cdots \varphi_n$ for the metric in some nbd of z_0 s.t $d\varphi_i(z_0) = 0$.

「~~Since we have a coordinate chart (z) s.t $\langle \frac{\partial}{\partial z_i}, \frac{\partial}{\partial z_j} \rangle_{z_0} = \delta_{ij}$, applying Gram-Schmidt process to $\langle z \rangle$, we get φ_i. $\Rightarrow \varphi_i(z_0) = 0$ since~~ 」