$$\bar{z}_i\, dz_i \wedge (dz_1 \wedge d\bar{z}_1) \wedge \cdots \wedge \widehat{(dz_i \wedge d\bar{z}_i)} \wedge \cdots \wedge (dz_n \wedge d\hat{\bar{z}}_n)$$

$$= \bar{z}_i\, dz_i \wedge d\bar{z}_1 \wedge \cdots \; (\; \wedge \;) \wedge dz_n \wedge d\hat{\bar{z}}_n \wedge dz_1 \; (-1)^{2(n-2)+1}$$

$$\vdots$$

$$= \bar{z}_i\, dz_i \wedge d\bar{z}_1 \wedge \cdots \widehat{d\bar{z}_i} \cdots \wedge d\bar{z}_n \wedge \hat{\Phi}^i(z) \quad (-1)^{2(n-2)+1+2(n-3)+2+2(n-\;)+3+\cdots}$$

$$= \bar{z}_i\, dz_i \wedge d\bar{z}_1 \wedge \cdots \widehat{d\bar{z}_i} \cdots \wedge d\bar{z}_n \wedge \hat{\Phi}^i(z) \quad (-1)^{\frac{n(n-1)}{2}}$$

$$= \bar{z}_i \; d\bar{z}_1 \wedge \cdots \widehat{d\bar{z}_i} \wedge \cdots \wedge d\bar{z}_n \wedge \Phi(z) \;\; (-1)^{(i-1)+(n-1)} (-1)^{\frac{n(n-1)}{2}}$$

$$= (-1)^i\, \bar{z}_i \; d\bar{z}_1 \wedge \cdots \wedge \widehat{d\bar{z}_i} \cdots \wedge d\bar{z}_n \wedge \Phi(z) \;\; (-1)^{\frac{(n-1)(n+2)}{2}} \quad \text{where } \hat{\Phi}^i(z) = dz_1 \wedge \cdots \widehat{dz_i} \wedge \cdots dz_n.$$

$$\Rightarrow \; C_n' \left(\sum \bar{z}_i\, dz_i\right) \wedge \left(\sum_j dz_j \wedge d\bar{z}_j\right)^{n-1}$$

$$= C_n'' \left(\sum (-1)^{i-1}\, \bar{z}_i \, d\bar{z}_1 \wedge \cdots \wedge \widehat{d\bar{z}_i} \wedge \cdots \wedge d\bar{z}_n \wedge dz_1 \wedge \cdots \wedge dz_n\right).$$

$$= C_n'' \sum \overline{\Phi_i(z)} \wedge \Phi(z)$$

Now we recall that under the projection

$$\mathbb{C}^n - \{0\} \longrightarrow \mathbb{P}^{n-1}$$

the Kähler form of the Fubini–Study metric pulls back to

$$\Omega = dd^c \log \|z\|^2 = \frac{\sqrt{-1}}{4\pi}\, \partial\bar{\partial} \log \|z\|^2 .$$

Let $\tilde{\mathbb{C}}^n$ be the blow-up of $\mathbb{C}^n$ at the origin and

$$\pi : \tilde{\mathbb{C}}^n \longrightarrow \mathbb{P}^{n-1}$$

the extension to $\tilde{\mathbb{C}}^n$ of the projection.

Γ $\tilde{\mathbb{C}}^n = \mathbb{C}^n - \{0\} \cup_{\pi'} \tilde{\Delta}$, where $\tilde{\Delta} = \{(z, \ell) \in \Delta \times \mathbb{P}^{n-1} ;\ z \in \ell\}$
Δ open disk of 0.

$$\pi' : \tilde{\Delta} \longrightarrow \Delta$$
$$(z, \ell) \longmapsto z$$

$$p_1 : (z, \ell) \longmapsto z \longmapsto \ell', \text{ where } z \in \ell'$$
$$p_2 : (z, \ell) \longmapsto \ell$$

$\Rightarrow$ $p_1(z, \ell) = p_2(z, \ell)$ since $z \in \ell$ & $z \in \ell' \Rightarrow \ell = \ell'$ if $z \neq 0$.

$\Rightarrow$ $p_1 = p_2$ on $\tilde{\Delta} - \pi'^{-1}(0)$ $\Rightarrow$ There exists an extension to $\tilde{\mathbb{C}}^n$ uni