near q, so that $\varphi - \log|h|$ is the real part of a holomorphic function j.

$$S|_U(\tilde{\varphi}) = \int_{M^*} f^*(\tilde{\varphi}), \quad \tilde{\varphi} \in A_c^{n,n}(U)$$

(See the implication of Reduction 3)

$$= \int_{f(M^*)} \tilde{\varphi} = \int_U \tilde{\varphi} = T_U(\tilde{\varphi}) \Rightarrow \underset{\displaystyle \frac{\sqrt{-1}}{\pi}\partial\bar{\partial}\log|h|}{\overset{\displaystyle T_U}{\|}}$$

by Poincare-Lelong equation. P388

$$\Rightarrow \frac{\sqrt{-1}}{\pi}\partial\bar{\partial}\log\varphi = \frac{\sqrt{-1}}{\pi}\partial\bar{\partial}\log|h|$$

$\Rightarrow$ $\varphi - \log|h|$ is the real part of a holomorphic function, j by P387.

This proves that the current

$$\theta = \partial\varphi = d\log h + dj \quad (\text{locally})$$

is a closed meromorphic 1-form on $\Delta^{n+1} - f(W)$.

In a distributional sense,

$$\varphi - \log|h| = j.$$

$\Rightarrow$ For $\psi \in A_c^{n+1,n+1}(U)$,

$$\int_U (\varphi - \log|h|)\psi = \int_U j\psi. \cdots \circledast$$

For $\psi \in A_c^{n,n+1}(U)$, $\partial\psi = d\psi$, since $U \subset \Delta^{n+1}$.

$$\int_U (\varphi - \log|h|)\partial\psi = \int_U j\partial\psi \quad \text{by } \circledast.$$