

space of definition  $Z = X \times Y$  is the product of two varieties, the changes of local coordinates being then of the type

$$x'_k = \psi_k(x_1^*, \dots, x_p^*); \quad y'_j = \phi_j(y_1^*, \dots, y_q^*). \quad (3)$$

Then

$dx dy V = \sum \frac{\partial V}{\partial x_p \partial y_q} dx_p dy_q$  is invariant, as a bilinear form, under the transformation (3).

In the case of a complex analytic variety  $W^n$ , we have on each coordinate patch coordinates  $z_k, \bar{z}_k$  and the change of coordinates

$$z'_k = \psi_k(z_1, \dots, z_n) \quad \bar{z}'_k = \bar{\psi}_k(\bar{z}_1, \dots, \bar{z}_n) \quad (4)$$

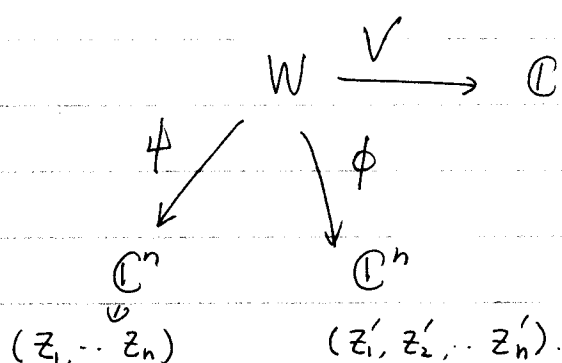
are of type (3), the function  $\psi_k$  being holomorphic functions. The bilinear form

$$L(V) = dz d\bar{z} V$$

is invariant under (4) and the condition  $L(V) \geq 0$  is independent of the choice of the local coordinates on  $W^n$ .

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$$L(V) = \partial \bar{\partial} V$$



$$\phi_k \circ \psi^{-1}(z_1, z_2, \dots, z_n) = z'_k$$

$$\bar{\partial} V = \frac{\partial V}{\partial \bar{z}_j} d\bar{z}_j = \frac{\partial V}{\partial \bar{z}_k} \frac{\partial \bar{z}_k}{\partial \bar{z}'_j} \frac{\partial \bar{z}'_j}{\partial \bar{z}_k} d\bar{z}_k \quad \text{since } d\bar{z}'_j = \frac{\partial \bar{z}'_j}{\partial \bar{z}_k} d\bar{z}_k$$

( $\because \frac{\partial z_p}{\partial \bar{z}_k} = 0$ ).