$$= C_n \int_{\|z_\alpha\|=\epsilon} \frac{\sum (-1)^{i-1}\, \overline{w_{\alpha i}}\, d\overline{w_{\alpha 1}} \wedge \cdots \wedge \widehat{d\overline{w_{\alpha i}}} \wedge \cdots d\overline{w_{\alpha n}} \wedge dw_{\alpha 1} \wedge \cdots \wedge dw_{\alpha n}}{\|w_\alpha\|^{2n} \det(I - \mathcal{J}(f))}$$

$$= \frac{1}{\det(I - \mathcal{J}(f)(0))} = \frac{1}{\det(I - B_\alpha)}$$

by the Bochner – Martinelli formula proved in Section 1 of this chapter. Putting this all together, we have the holomorphic Lefschetz fixed-point formula:

$$L(f, \mathcal{O}) = \sum_{f(P_\alpha)=P_\alpha} \frac{1}{\det(I - B_\alpha)}.$$

Pf $\quad w_\alpha = z_\alpha - f(z_\alpha). \quad \Rightarrow \quad \left(\frac{\partial w_{\alpha i}}{\partial z_{\alpha j}}\right) = (I - \mathcal{J}(f)).$

$$\int_{\|z_\alpha\|=\epsilon} k(z_\alpha, f(z_\alpha))$$

$$= C_n \int_{\|z_\alpha\|=\epsilon} \frac{\sum \overline{\Phi_i(z_\alpha - f(z_\alpha))} \wedge \Phi(f(z_\alpha))}{\|w_\alpha\|^{2n}}$$

$$= C_n \int_{\|z_\alpha\|=\epsilon} \frac{\sum \overline{\Phi_i(z_\alpha - f(z_\alpha))} \wedge \Phi(z_\alpha - w_\alpha)}{\|w_\alpha\|^{2n}}$$

$$= C_n \int_{\|z_\alpha\|=\epsilon} \frac{\sum (-1)^i\, \overline{w_{\alpha i}}\, d\overline{w_{\alpha 1}} \wedge \cdots \widehat{d\overline{w_{\alpha i}}} \wedge \cdots \wedge d\overline{w_{\alpha n}} \wedge d(z_{\alpha 1} - w_{\alpha 1}) \wedge \cdots \wedge d(z_{\alpha n} - w_{\alpha n})}{\|w_\alpha\|^{2n}}$$

$$= C_n \int_{\|z_\alpha\|=\epsilon} \frac{\sum (-1)^i\, \overline{w_{\alpha i}} \cdots \quad \wedge df_1 \wedge \cdots \wedge df_n}{\|w_\alpha\|^{2n}}$$