

$$\rho(\psi)(\eta)_p = \text{Res}_p(\rho^*\psi, \eta) = \text{Res}_p\left(\frac{\eta\psi}{s \cdot s'}\right) = \rho(\psi)(\eta)$$

 $\Rightarrow$ 

From the local duality theorem it follows that

$$\ker \rho \cong H^0(\mathcal{I}_P(K+L)) / \{s\omega + s'\omega'\}.$$

 $\Gamma$ 

$$0 \longrightarrow \text{Ext}^1(S; \mathcal{I}_P(L), \Omega^2) \longrightarrow \frac{H^0(\mathcal{O}(K+L))}{\{s\omega + s'\omega'\}} \xrightarrow{\rho} \bigoplus_{p \in P} (\mathcal{O}_P(L)_p)^*$$

$$\downarrow \qquad \qquad \qquad \downarrow$$

$$\psi + \{s\omega + s'\omega'\} \longmapsto (\rho(\psi)_p)$$

For each  $p \in P$ , for all  $\eta \in \mathcal{O}_P(L)_p = \frac{\mathcal{O}(L)_p}{\mathcal{I}_P(L)_p}$ ,

$$\rho(\psi)(\eta) = 0 \Rightarrow \psi \in \mathcal{I}_P(K+L)_p$$

by the Local duality theorem I on P659 and the Local duality theorem II on P693. Refer to Proposition on P690 ~ P691.

 $\Rightarrow$ 

$$\ker \rho \cong H^0(\mathcal{I}_P(K+L)) / \{s\omega + s'\omega'\}.$$

 $\Rightarrow$ 

We conclude from (\*) and (\*\*) that