

We shall calculate the latter by applying the exact sequence of global Ext and interpreting the maps.

First, we observe from $\underline{\text{Ext}}_O^0(\mathcal{O}_P(L), \Omega^2) = \underline{\text{Ext}}_O^1(\mathcal{O}_P(L), \Omega^2) = 0$ and the spectral sequence

$$\begin{aligned} E_2^{p,q} &\Rightarrow \text{Ext}^*(S; \mathcal{O}_P(L), \Omega^2) \\ &\parallel \\ H^q(S, \underline{\text{Ext}}_O^q(\mathcal{O}_P(L), \Omega^2)) \end{aligned}$$

for global Ext that $\text{Ext}^1(S; \mathcal{O}_P(L), \Omega^2) = 0$.

By the proposition on P690, P706,
 $\underline{\text{Ext}}_O^0(\mathcal{O}_P(L), \Omega^2) = \underline{\text{Ext}}_O^1(\mathcal{O}_P(L), \Omega^2) = 0$, since

$$\mathcal{O}_P(L) = \frac{\mathcal{O}(L)}{\mathcal{I}_P(L)} = \frac{\mathcal{O}}{\mathcal{I}_P}, \text{ where } \mathcal{I}_P \text{ is a sheaf of ideals.}$$

According to P706, $E_2^{p,q} = E_2^{p,q}$ (on P711)
and by the second property, since $\underline{\text{Ext}}_O^0(\mathcal{O}_P(L), \Omega^2) = 0$,
 $\text{Ext}^1(S; \mathcal{O}_P(L), \Omega^2) \cong H^0(S, \underline{\text{Ext}}_O^1(\mathcal{O}_P(L), \Omega^2)).$

But since $\underline{\text{Ext}}_O^1(\mathcal{O}_P(L), \Omega^2) = 0$,

$$H^0(S, \underline{\text{Ext}}_O^1(\mathcal{O}_P(L), \Omega^2)) = 0 = \text{Ext}^1(S; \mathcal{O}_P(L), \Omega^2). \quad \square$$

Thus we have