

$\cong \text{Ext}^0(\mathcal{O}_I, \mathcal{O}) = 0$  by the proposition on P690,  
 $\text{Ext}^1(\mathcal{O}_Z, \mathcal{L}) = 0$  and similarly  $\text{Ext}^1(\mathcal{O}_Z, \mathcal{L}) = 0$ .

Thus  $\text{Ext}^0(\mathcal{O}, \mathcal{L}) \cong \text{Ext}^0(I, \mathcal{L}) \cong \mathcal{L}$ , since  
 $\text{Ext}^0(\mathcal{O}, \mathcal{L})_p \cong \text{Ext}^0(\mathcal{O}_p, \mathcal{L}_p) \cong \mathcal{L}_p$ .

$$\Rightarrow E_2^{2,0} = H^2(S, \text{Ext}_\mathcal{O}^0(I, \mathcal{L})) \cong H^2(S, \mathcal{L}) \cong H^2(\mathcal{L}). \quad \square$$

In particular, if  $E_2^{2,0} = 0$ , then  $\text{Ext}^1(S; I, \mathcal{L}) \cong H^0(S, \text{Ext}_\mathcal{O}^1(I, \mathcal{L}))$ , and  $(**)$  may be solved.

$\Upsilon$

$$E_\infty^{0,1} = \frac{H^1}{F^1 H^1} \Rightarrow H^1 = \text{Ext}^1(S; I, \mathcal{L}) = E_\infty^{0,1} \oplus F^1 H^1 \\ = E_\infty^{0,1} \oplus E_\infty^{1,0}$$

$$E_2^{-2,2} \xrightarrow{d_2} E_2^{0,1} \xrightarrow{d_2} E_2^{2,0} = 0 \Rightarrow E_3^{0,1} = E_2^{0,1} \Rightarrow$$

We have  $E_2^{0,1} = E_3^{0,1} = \dots = E_\infty^{0,1} = H^0(S, \text{Ext}_\mathcal{O}^1(I, \mathcal{L}))$ .

Similarly,  $E_\infty^{1,0} = \dots = E_2^{1,0} = H^1(S, \text{Ext}_\mathcal{O}^0(I, \mathcal{L})) = H^1(S, \mathcal{L})$   
 $\Rightarrow \text{Ext}^1(S; I, \mathcal{L}) = H^0(S, \text{Ext}_\mathcal{O}^1(I, \mathcal{L})) \oplus H^1(S, \mathcal{L})$

From  $0 \rightarrow I \rightarrow \mathcal{O} \rightarrow \mathcal{O}_Z \rightarrow 0$ , we have

$$\text{Ext}_\mathcal{O}^1(\mathcal{O}_Z, \mathcal{L}) \rightarrow \text{Ext}_\mathcal{O}^1(\mathcal{O}, \mathcal{L}) \rightarrow \text{Ext}_\mathcal{O}^1(I, \mathcal{O}) \rightarrow$$

$$\text{Ext}_\mathcal{O}^2(\mathcal{O}_Z, \mathcal{O}) \rightarrow \text{Ext}_\mathcal{O}^2(\mathcal{O}, \mathcal{L})$$

$$\Rightarrow \text{Ext}_\mathcal{O}^1(I, \mathcal{O}) \cong \text{Ext}_\mathcal{O}^2(\mathcal{O}_Z, \mathcal{O}) \cong \mathcal{O}_Z.$$