

$$\begin{aligned} {}'E_2^{1,q} = 0 &\Rightarrow {}'E_3^{1,q} = 0 = \dots = {}'E_\infty^{1,q} \\ {}'E_2^{2,q} = 0 &\Rightarrow {}'E_3^{2,q} = \dots = {}'E_\infty^{2,q} = 0 \\ &\vdots \end{aligned}$$

$$\begin{aligned} {}'E_2^{0,k} &= \frac{H^k}{F' H^k} \Rightarrow H^k = {}'E_2^{0,k} \oplus F' H^k = {}'E_2^{0,k} \oplus {}'E_2^{1,k-1} \oplus \dots \\ &= {}'E_2^{0,k} = H^0(U, \underline{\text{Ext}}_O^k(\mathcal{F}, \mathcal{G})) \\ &= \text{Ext}^k(U; \mathcal{F}, \mathcal{G}). \end{aligned}$$

$$\Rightarrow H^0(U, \underline{\text{Ext}}_O^*(\mathcal{F}, \mathcal{G})) = \text{Ext}^*(U; \mathcal{F}, \mathcal{G}) \quad \square$$

Thus  $e \in \text{Ext}^1(S; I, L)$  induces  $e_p$  in each stalk  $\underline{\text{Ext}}_O^1(I, L)_p$  for any point  $p \in S$ .

$$\begin{array}{ccc} \Gamma & \text{Ext}^1(S; \mathcal{F}, \mathcal{G}) & \longrightarrow \text{Ext}^1(U; \mathcal{F}, \mathcal{G}) = H^0(U, \underline{\text{Ext}}_O^1(\mathcal{F}, \mathcal{G})) \\ & \downarrow e & \downarrow e_u \\ & & \downarrow \\ & & \underline{\text{Ext}}_O^1(\mathcal{F}, \mathcal{G})_p \\ & & \downarrow e_p \\ & & \end{array}$$

where  $\mathcal{F} = I$  and  $\mathcal{G} = L$ .  $\square$

By the discussion in the preceding section, a class  $e \in \text{Ext}^1(S; I, L)$  defines a global extension

$$0 \longrightarrow L \longrightarrow \mathcal{E}^* \longrightarrow I \longrightarrow 0$$

over  $S$ , and by the lemma on P. 724 the coherent sheaf  $\mathcal{E}^*$  will be locally free if each  $e_p$  is a