unit for $p \in Z$. Thus, solving (**) and finding (*) are entirely equivalent.

$\ulcorner$ $\underline{Ext}^1(I, \mathcal{L})_p = \underline{Ext}^1(I_p, \mathcal{L}_p) \cong \underline{Ext}^2_{\mathcal{O}}(\mathcal{O}_p/I_p, \mathcal{O}_p) \cong (\mathcal{O}/I)_p$

$$\underline{Ext}^1(I_p, \mathcal{O}_p)$$

$= \mathcal{O}_{Z,p}$ by P 723

(i) $p \notin Z$,

$\Rightarrow$ From $0 \to \mathcal{L} \to \mathcal{E}^* \to I \to 0$, we have

$$0 \to \mathcal{L}_p \to \mathcal{E}^*_p \to I_p \to 0.$$

Since $\mathcal{L}_p \cong \mathcal{O}$ and $I_p \cong \mathcal{O}_p (\cong \mathcal{O})$ $\mathcal{E}^*_p \cong \mathcal{O} \oplus \mathcal{O}$.

(ii) $p \in Z$

Again, from $0 \to \mathcal{L} \to \mathcal{E}^* \to I \to 0$, we have

$$0 \to \mathcal{L}_p \to \mathcal{E}^*_p \to I_p \to 0.$$

$\Rightarrow$ By the lemma on P724, since $e_p \in \underline{Ext}^1(I, \mathcal{L})_p = Ext^1(I_p, \mathcal{L}_p)$ is a unit, $\mathcal{E}^*_p$ is free (= projective).

Thus $\mathcal{E}^*_p \cong \mathcal{O}^{(k)}$, for some k.

We have to show that $\mathcal{E}^* \cong \mathcal{O}^{(k)}$ locally.

For example $k = 2$, $\mathcal{E}^*_p \cong \mathcal{O} \oplus \mathcal{O}$.

We will show that $\exists$ open set $U \ni p$ s.t $\mathcal{E}|_U \cong \mathcal{O}|_U \oplus \mathcal{O}|_U$.

Suppose that σ_1, σ_2 are basis for $\mathcal{E}^*_p$.