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$\deg (K_S - L_i)|_{S\cap H} \geq 0$. For a global section $\sigma : S \to K_S - L_i$,

$$\begin{array}{ccc} (K_S - L_i)|_{S\cap H} & \longrightarrow & K_S - L_i \\ \downarrow \uparrow \sigma|_H & & \downarrow \uparrow \sigma \\ S\cap H & \longrightarrow & S \subset \mathbb{P}^3 \end{array}$$

$\exists$ a global section $\sigma|_H$ of $(K_S - L_i)|_{S\cap H}$ $\Rightarrow$ Contradiction to the fact that $\deg L < 0 \Rightarrow H^0(S, \mathcal{O}(L)) = 0$, by P 214.

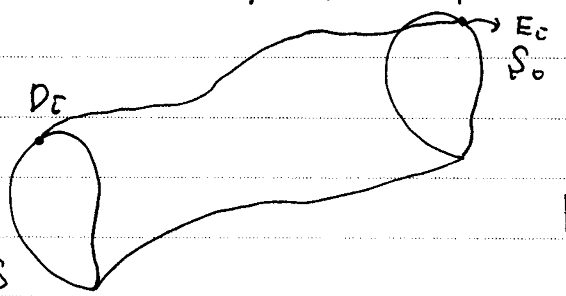
Thus $h^0(L_i) \geq 1$,

so L_i has a nonzero global section, and μ_i is the cohomology class of an effective divisor D_i.

$1 = \chi(\mathcal{O}_S) = \chi(L_i) = h^0(L_i) - h^{0,1}(L_i) + h^{0,2}(L_i)$.

$\Rightarrow$ Since $h^2(L_i) = h^0(K_S - L_i)$, and $h^0(K_S - L_i) = 0$, $h^2(L_i) = 0$, and $h^{0,2}(L_i) = 0$. $\Rightarrow$ $h^0(L_i) = 1 + h^{0,1}(L_i) \geq 1$.

D_i is a different effective divisor from E_i.



P141 . Proposition 2

Since $D_i \cdot H_S = 1$, D_i is a line on S in $\mathbb{P}^3$. Thus D_i is a smooth rational curve on S with self-intersection -1 and so can be blown down.

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