④

$$\lim_{h\to 0} \frac{(1,0,\alpha_{21}-\alpha_{20},0)-(1,0,h(\alpha_{11}-\alpha_{10})+\alpha_{21}-\alpha_{20},0)}{h}$$

$= -(0,0,\alpha_{11}-\alpha_{10},0)$ is a tangent vector along the fiber of $E'$.

$$\Rightarrow \begin{pmatrix} 0, & 1, & 0, & \overset{\overset{\displaystyle l}{\shortparallel}}{\dfrac{\alpha_{21}-\alpha_{20}}{\alpha_{11}-\alpha_{10}}(\alpha_{12}-\alpha_{10})} \\ 1, & 0, & \alpha_{21}-\alpha_{20}, & 0 \\ 0, & 1, & 0, & \alpha_{22}-\alpha_{20} \\ 0, & 0, & \alpha_{11}-\alpha_{10}, & 0 \end{pmatrix}$$

$$\Rightarrow \det \begin{pmatrix} 0, & 1, & 0, & l \\ 1, & 0, & \alpha_{21}-\alpha_{20}, & 0 \\ 0, & 1, & 0, & \alpha_{22}-\alpha_{20} \\ 0, & 0, & \alpha_{11}-\alpha_{10} & 0 \end{pmatrix} = \det \begin{pmatrix} 0, & 0, & 0, & l-(\alpha_{22}-\alpha_{20}) \\ 1, & 0, & 0, & 0 \\ 0, & 1, & 0, & \alpha_{22}-\alpha_{20} \\ 0, & 0, & \alpha_{11}-\alpha_{10}, & 0 \end{pmatrix}$$

$$= \pm(\alpha_{11}-\alpha_{10})(l-(\alpha_{22}-\alpha_{20}))$$

$$= \pm\{(\alpha_{21}-\alpha_{20})(\alpha_{12}-\alpha_{10})-(\alpha_{11}-\alpha_{10})(\alpha_{22}-\alpha_{20})\} \neq 0$$

$\Rightarrow$ $T_pE' + \operatorname{im} v_{2*} = T_p\mathbb{C}^4$, which implies that $v_2$ intersects with $E'$ at $p$ transversely.

(ii) $(x_1, x_2) = (0,0)$.