$\Rightarrow \quad \mathrm{Im}\, \nu_{2*} + E'_p = T_p(\mathbb{C}^2 \times \mathbb{C}^2)$

~~$\Rightarrow$ ν_2 intersects with E at $(1, 0, \alpha_{21}-\alpha_{20}, 0)$ transversely.~~

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

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①

$$\lim_{h\to 0} \frac{(1, 0, \alpha_{21}-\alpha_{20}, 0) - \left(1, h, \alpha_{21}-\alpha_{20}, \frac{\alpha_{21}-\alpha_{20}}{\alpha_{11}-\alpha_{10}} \cdot (\alpha_{12}-\alpha_{10}) \cdot h\right)}{h}$$

$$= -\left(0, 1, 0, \frac{\alpha_{21}-\alpha_{20}}{\alpha_{11}-\alpha_{10}} (\alpha_{12}-\alpha_{10})\right)$$

②

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

$$= -(1, 0, \alpha_{21}-\alpha_{20}, 0)$$

③

$$\nu_2 : \mathbb{C}^2 \longrightarrow \mathbb{C}^2 \times \mathbb{C}^2$$

$$(x_1, x_2) \longmapsto (x_1, x_2, (\alpha_{21}-\alpha_{20})x_1, (\alpha_{22}-\alpha_{20})x_2)$$

$$\nu_{2*} : T\mathbb{C}^2 \longrightarrow T_p(\mathbb{C}^2 \times \mathbb{C}^2)$$

$$\begin{pmatrix} x \\ y \end{pmatrix} \longmapsto \begin{pmatrix} 1 & 0 \\ 0 & 1 \\ \alpha_{21}-\alpha_{20}, & 0 \\ 0, & \alpha_{22}-\alpha_{20} \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix}$$

$$\Rightarrow \quad \mathrm{Im}\, \nu_{2*} = \langle (1, 0, \alpha_{21}-\alpha_{20}, 0), \; (0, 1, 0, \alpha_{22}-\alpha_{20}) \rangle.$$