$$z \rtimes \begin{bmatrix} \alpha & b & \beta \\ c & d & \acute{c} \\ \gamma & \acute{b} & \delta \end{bmatrix} = \frac{\varepsilon b + zd - z\overset{t}{z}\acute{b}/2\varepsilon}{\alpha + zc/\varepsilon - z\overset{t}{z}\gamma/2\varepsilon^2}$$

$$\begin{bmatrix} \varepsilon & z & -z\overset{t}{z}/2\varepsilon \end{bmatrix} \begin{bmatrix} \alpha & b & \beta \\ c & d & \acute{c} \\ \gamma & \acute{b} & \delta \end{bmatrix}$$

$$= \begin{bmatrix} \varepsilon\alpha + zc - z\overset{t}{z}\gamma/2\varepsilon & \varepsilon b + zd - z\overset{t}{z}\acute{b}/2\varepsilon & \varepsilon\beta + z\acute{c} - z\overset{t}{z}\delta/2\varepsilon \end{bmatrix} = \begin{bmatrix} \varepsilon & \dfrac{\varepsilon b + zd - z\overset{t}{z}\acute{b}/2\varepsilon}{\alpha + zc/\varepsilon - z\overset{t}{z}\gamma/2\varepsilon^2} & \dfrac{\varepsilon\beta + z\acute{c} - z\overset{t}{z}\delta/2\varepsilon}{\alpha + zc/\varepsilon - z\overset{t}{z}\gamma/2\varepsilon^2} \end{bmatrix}$$

$$\begin{bmatrix} \alpha & \overset{T}{b} & \beta \\ c & d & \acute{c} \\ \gamma & \acute{b} & \delta \end{bmatrix} \begin{bmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix} + \begin{bmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix} \begin{bmatrix} \alpha & b & \beta \\ c & d & \acute{c} \\ \gamma & \acute{b} & \delta \end{bmatrix} = 0 \Leftrightarrow \begin{bmatrix} \alpha & b & 0 \\ c & d & -\overset{t}{b} \\ 0 & -\overset{t}{c} & -\alpha \end{bmatrix}$$

$$z \rtimes \begin{bmatrix} \alpha & b & 0 \\ c & d & -\overset{t}{b} \\ 0 & -\overset{t}{c} & -\alpha \end{bmatrix} = \varepsilon b + zd + z\,\overset{t}{z}\,\overset{t}{c}/2\varepsilon - \alpha z - zcz/\varepsilon$$

$$\partial_t \frac{\varepsilon b_t + zd_t - z\overset{t}{z}\acute{b}_t/2\varepsilon}{\alpha_t + zc_t/\varepsilon - z\overset{t}{z}\gamma_t/2\varepsilon^2}$$

$$= \frac{\left(\alpha_0 + zc_0/\varepsilon - z\overset{t}{z}\gamma_0/2\varepsilon^2\right)\left(\varepsilon b + zd - z\overset{t}{z}\acute{b}/2\varepsilon\right) - \left(\alpha + zc/\varepsilon - z\overset{t}{z}\gamma/2\varepsilon^2\right)\left(\varepsilon b_0 + zd_0 - z\overset{t}{z}\acute{b}_0/2\varepsilon\right)}{\left(\alpha_0 + zc_0/\varepsilon - z\overset{t}{z}\gamma_0/2\varepsilon^2\right)^2}$$

$$= \varepsilon b + zd - z\,\overset{t}{z}\,\acute{b}/2\varepsilon - \left(\alpha + zc/\varepsilon - z\overset{t}{z}\gamma/2\varepsilon^2\right) z = \varepsilon b + zd - z\,\overset{t}{z}\,\acute{b}/2\varepsilon - \alpha z - zcz/\varepsilon + z\,\overset{t}{z}\,\gamma z/2\,\varepsilon^2$$

$$\begin{cases} \text{Ↄ}|\mathbb{K}\times\text{⅂}\times\mathbb{K} \\ {}_{1+n+1}{}^{\text{Ↄ}}\mathbb{K}^{1+n+1} \end{cases} \xrightarrow{\rtimes} \begin{cases} \underset{\omega}{\text{Ç}}|_{\bigcirc}\text{⅂} \\ \underset{\omega}{\text{Ç}}|_{\bigcirc}\mathbb{K}^n \end{cases}$$

$$\mathsf{L} \rtimes \begin{bmatrix} \delta & \mathbb{L} & \gamma \\ \text{⅂⅂} & \text{⅃⅃} & \acute{\text{⅂⅂}} \\ \beta & \acute{\mathbb{L}} & \alpha \end{bmatrix} = \frac{\mathbb{L} + \mathsf{L}\,\text{⅃⅃} - \mathsf{L}\mathsf{L}^t/2\acute{\mathbb{L}}}{\delta + \mathsf{L}\,\text{⅂⅂} - \mathsf{L}\mathsf{L}^t/2\beta}$$

$$\begin{cases} \ni|\mathbb{K}\times\daleth\times\mathbb{K} \\ {}_{1+n+1}{}^{\ni}\mathbb{K}^{1+n+1} \end{cases} \xrightarrow{\ltimes} \begin{cases} \Subset_{\omega}|_{\bigcirc}\daleth \\ \Subset_{\omega}|_{\bigcirc}\mathbb{K}^{n} \end{cases}$$

$$\ltimes\begin{bmatrix} -\alpha & \mathbb{L} & 0 \\ \daleth & \daleth & -\mathbb{L}^{t} \\ 0 & -\daleth^{t} & \alpha \end{bmatrix} = \underbrace{\mathbb{L} + \mathsf{L}\daleth - \mathsf{L}\mathsf{L}^{t}/2\mathbb{L}' + \mathsf{L}\alpha - \mathsf{L}\widehat{\mathsf{L}\daleth}}\frac{\partial}{\partial\mathsf{L}}$$

$$\begin{array}{ccc} \begin{cases} \supset|\mathbb{K}\times\daleth\times\mathbb{K} \\ {}_{1+n+1}{}^{\supset}\mathbb{K}^{1+n+1} \end{cases} & \xrightarrow{\ \ \ltimes\ \ } & \begin{cases} \subset_{\omega}|_{\bigcirc}\daleth \\ \subset_{\omega}|_{\bigcirc}\mathbb{K}^{n} \end{cases} \\ \uparrow \mathfrak{e} & & \uparrow \mathfrak{e} \\ \begin{cases} \ni|\mathbb{K}\times\daleth\times\mathbb{K} \\ {}_{1+n+1}{}^{\ni}\mathbb{K}^{1+n+1} \end{cases} & \xrightarrow{\ \ \ltimes\ \ } & \begin{cases} \Subset_{\omega}|_{\bigcirc}\daleth \\ \Subset_{\omega}|_{\bigcirc}\mathbb{K}^{n} \end{cases} \end{array}$$