$$\underbrace{\mathbb{L}:\mathbb{t}}\,\underbrace{\mathbb{v}:\mathbb{w}} = \underbrace{\mathbb{L}\mathbb{v} + \varepsilon\overset{*}{\mathbb{w}}\mathbb{t}}:\underbrace{\mathbb{w}\mathbb{L} + \mathbb{t}\overset{*}{\mathbb{v}}}$$

$$\left(\begin{array}{c|c} \mathbb{L} & \varepsilon\mathbb{t} \\ \hline \overset{*}{\mathbb{t}} & \overset{*}{\mathbb{L}} \end{array}\right)\left(\begin{array}{c|c} \mathbb{v} & \varepsilon\mathbb{w} \\ \hline \overset{*}{\mathbb{w}} & \overset{*}{\mathbb{v}} \end{array}\right) = \left(\begin{array}{c|c} \mathbb{L}\mathbb{v} + \varepsilon\overset{*}{\mathbb{w}}\mathbb{t} & \varepsilon\overbrace{\mathbb{w}\mathbb{L} + \mathbb{t}\overset{*}{\mathbb{v}}} \\ \hline \overset{*}{\mathbb{L}}\overset{*}{\mathbb{w}} + \mathbb{v}\overset{*}{\mathbb{t}} & \overset{*}{\mathbb{v}}\overset{*}{\mathbb{L}} + \varepsilon\overset{*}{\mathbb{t}}\mathbb{w} \end{array}\right)$$

$$\left[\begin{array}{c|c} \mathbb{L} & \varepsilon\mathbb{t} \\ \hline \overset{*}{\mathbb{t}} & \overset{*}{\mathbb{L}} \end{array}\quad\begin{array}{c|c} \mathbb{v} & \varepsilon\mathbb{w} \\ \hline \overset{*}{\mathbb{w}} & \overset{*}{\mathbb{v}} \end{array}\right]$$

$$\left[\begin{array}{c|c} \mathbb{L} & \varepsilon\mathbb{t} \\ \hline \overset{*}{\mathbb{t}} & \overset{*}{\mathbb{L}} \end{array}\quad\begin{array}{c|c} \mathbb{v} & \varepsilon\mathbb{w} \\ \hline \overset{*}{\mathbb{w}} & \overset{*}{\mathbb{v}} \end{array}\right]\overset{*}{\left[\begin{array}{c|c} \mathbb{L} & \varepsilon\mathbb{t} \\ \hline \overset{*}{\mathbb{t}} & \overset{*}{\mathbb{L}} \end{array}\quad\begin{array}{c|c} \mathbb{v} & \varepsilon\mathbb{w} \\ \hline \overset{*}{\mathbb{w}} & \overset{*}{\mathbb{v}} \end{array}\right]}\left[\begin{array}{c|c} \mathbb{L} & \varepsilon\mathbb{t} \\ \hline \overset{*}{\mathbb{t}} & \overset{*}{\mathbb{L}} \end{array}\quad\begin{array}{c|c} \mathbb{v} & \varepsilon\mathbb{w} \\ \hline \overset{*}{\mathbb{w}} & \overset{*}{\mathbb{v}} \end{array}\right]$$

$$= \left[\begin{array}{c|c} \mathbb{L} & \varepsilon\mathbb{t} \\ \hline \overset{*}{\mathbb{t}} & \overset{*}{\mathbb{L}} \end{array}\quad\begin{array}{c|c} \mathbb{v} & \varepsilon\mathbb{w} \\ \hline \overset{*}{\mathbb{w}} & \overset{*}{\mathbb{v}} \end{array}\right]\left[\begin{array}{c|c} \overset{*}{\mathbb{L}} & \overset{*}{\mathbb{t}} \\ \hline \varepsilon\mathbb{t} & \mathbb{L} \end{array}\quad\begin{array}{c|c} \mathbb{v} & \varepsilon\mathbb{w} \\ \hline \overset{*}{\mathbb{w}} & \overset{*}{\mathbb{v}} \end{array}\right]\left[\begin{array}{c|c} \mathbb{L} & \varepsilon\mathbb{t} \\ \hline \overset{*}{\mathbb{t}} & \overset{*}{\mathbb{L}} \end{array}\quad\begin{array}{c|c} \mathbb{v} & \varepsilon\mathbb{w} \\ \hline \overset{*}{\mathbb{w}} & \overset{*}{\mathbb{v}} \end{array}\right]$$

$$= \underbrace{\left(\begin{array}{c|c} \mathbb{L} & \varepsilon\mathbb{t} \\ \hline \overset{*}{\mathbb{t}} & \overset{*}{\mathbb{L}} \end{array}\right)\left(\begin{array}{c|c} \overset{*}{\mathbb{L}} & \overset{*}{\mathbb{t}} \\ \hline \varepsilon\mathbb{t} & \mathbb{L} \end{array}\right) + \left(\begin{array}{c|c} \mathbb{v} & \varepsilon\mathbb{w} \\ \hline \overset{*}{\mathbb{w}} & \overset{*}{\mathbb{v}} \end{array}\right)\left(\begin{array}{c|c} \mathbb{v} & \varepsilon\mathbb{w} \\ \hline \overset{*}{\mathbb{w}} & \overset{*}{\mathbb{v}} \end{array}\right)}\left[\begin{array}{c|c} \mathbb{L} & \varepsilon\mathbb{t} \\ \hline \overset{*}{\mathbb{t}} & \overset{*}{\mathbb{L}} \end{array}\quad\begin{array}{c|c} \mathbb{v} & \varepsilon\mathbb{w} \\ \hline \overset{*}{\mathbb{w}} & \overset{*}{\mathbb{v}} \end{array}\right]$$

$$= \left[\begin{array}{c|c} \mathbb{L} & \varepsilon\mathbb{t} \\ \hline \overset{*}{\mathbb{t}} & \overset{*}{\mathbb{L}} \end{array}\left(\begin{array}{c|c} \overset{*}{\mathbb{L}} & \overset{*}{\mathbb{t}} \\ \hline \varepsilon\mathbb{t} & \mathbb{L} \end{array}\right) + \left(\begin{array}{c|c} \mathbb{v} & \varepsilon\mathbb{w} \\ \hline \overset{*}{\mathbb{w}} & \overset{*}{\mathbb{v}} \end{array}\right)\left(\begin{array}{c|c} \mathbb{v} & \varepsilon\mathbb{w} \\ \hline \overset{*}{\mathbb{w}} & \overset{*}{\mathbb{v}} \end{array}\right)\quad\left(\begin{array}{c|c} \mathbb{L} & \varepsilon\mathbb{t} \\ \hline \overset{*}{\mathbb{t}} & \overset{*}{\mathbb{L}} \end{array}\right)\left(\begin{array}{c|c} \overset{*}{\mathbb{L}} & \overset{*}{\mathbb{t}} \\ \hline \varepsilon\mathbb{t} & \mathbb{L} \end{array}\right) + \left(\begin{array}{c|c} \mathbb{v} & \varepsilon\mathbb{w} \\ \hline \overset{*}{\mathbb{w}} & \overset{*}{\mathbb{v}} \end{array}\right)\left(\begin{array}{c|c} \mathbb{v} & \varepsilon\mathbb{w} \\ \hline \overset{*}{\mathbb{w}} & \overset{*}{\mathbb{v}} \end{array}\right)\right]$$