

$$\begin{array}{c|cc} \kappa\bar{\sigma} & -i\bar{\tau} \\ \hline -i\bar{\sigma} & \kappa\bar{\tau} \end{array} \quad {}^n\mathbb{C}_n^{\mathbb{C}} \quad \begin{array}{c|cc} \kappa\sigma & i\sigma \\ \hline i\tau & \kappa\tau \end{array} \quad \xrightarrow{\begin{array}{c|cc} 0 & 1 \\ \hline -1 & 0 \end{array}} \quad {}_2\mathbb{C}_n^{\mathbb{C}}$$

$$\Gamma \in {}^n\mathbb{C}_n^{\mathbb{C}} \Rightarrow \begin{array}{c|cc} \kappa\bar{\sigma} & -i\bar{\tau} \\ \hline -i\bar{\sigma} & \kappa\bar{\tau} \end{array} \stackrel{t}{+} \begin{array}{c|cc} \kappa\sigma & i\sigma \\ \hline i\tau & \kappa\tau \end{array} \quad \overbrace{\begin{array}{c|cc} \kappa\bar{\sigma} & -i\bar{\tau} \\ \hline -i\bar{\sigma} & \kappa\bar{\tau} \end{array} \stackrel{t}{+} \begin{array}{c|cc} \kappa\sigma & i\sigma \\ \hline i\tau & \kappa\tau \end{array}}^{t}$$

$$= \begin{array}{c|cc} \kappa\bar{\sigma} & -i\bar{\tau} \\ \hline -i\bar{\sigma} & \kappa\bar{\tau} \end{array} \stackrel{t}{+} \underbrace{\begin{array}{c|cc} \kappa\sigma & i\sigma \\ \hline i\tau & \kappa\tau \end{array} \begin{array}{c|cc} \kappa\sigma & i\tau \\ \hline i\sigma & \kappa\tau \end{array}}_{\begin{array}{c|cc} 0 & \kappa i\sigma\tau \\ \hline \kappa i\sigma\tau & 0 \end{array}} \stackrel{t}{+} \begin{array}{c|cc} \kappa\sigma & i\sigma \\ \hline i\tau & \kappa\tau \end{array} = \begin{array}{c|cc} \kappa\bar{\sigma} & -i\bar{\tau} \\ \hline -i\bar{\sigma} & \kappa\bar{\tau} \end{array} \stackrel{t}{+} \begin{array}{c|cc} \kappa i\sigma\tau & 0 \\ \hline 0 & \kappa i\sigma\tau \end{array} \quad \begin{array}{c|cc} 0 & 1 \\ \hline 1 & 0 \end{array} \stackrel{t}{+} \begin{array}{c|cc} \kappa\sigma & i\sigma \\ \hline i\tau & \kappa\tau \end{array}$$

$$= \begin{array}{c|cc} \kappa\bar{\sigma} & -i\bar{\tau} \\ \hline -i\bar{\sigma} & \kappa\bar{\tau} \end{array} \quad \begin{array}{c|cc} \kappa i\sigma\tau & 0 \\ \hline 0 & \kappa i\sigma\tau \end{array} \quad \stackrel{t}{+} \begin{array}{c|cc} 0 & 1 \\ \hline 1 & 0 \end{array} \quad \stackrel{t}{+} \begin{array}{c|cc} \kappa\sigma & i\sigma \\ \hline i\tau & \kappa\tau \end{array} = \frac{\kappa i\tau}{\tau} \begin{array}{c|cc} \sigma & \\ \hline \kappa i\sigma & \end{array} \quad \stackrel{t}{+} \underbrace{\begin{array}{c|cc} 0 & 1 \\ \hline 1 & 0 \end{array}}_{=\stackrel{-1}{+} \begin{array}{c|cc} 0 & 1 \\ \hline 1 & 0 \end{array}} \quad \stackrel{t}{+} \begin{array}{c|cc} \kappa\sigma & i\sigma \\ \hline i\tau & \kappa\tau \end{array}$$

$$= \frac{\kappa i\tau}{\tau} \begin{array}{c|cc} \sigma & \\ \hline \kappa i\sigma & \end{array} \quad \underbrace{\stackrel{+}{+} \stackrel{-1}{+}}_{=\begin{array}{c|cc} 1 & 0 \\ \hline 0 & 1 \end{array}} \quad \begin{array}{c|cc} 0 & 1 \\ \hline 1 & 0 \end{array} \quad \begin{array}{c|cc} \kappa\sigma & i\sigma \\ \hline i\tau & \kappa\tau \end{array} = \frac{\kappa i\tau}{\tau} \begin{array}{c|cc} \sigma & \\ \hline \kappa i\sigma & \end{array} \quad \begin{array}{c|cc} 0 & 1 \\ \hline 1 & 0 \end{array} \quad \begin{array}{c|cc} \kappa\sigma & i\sigma \\ \hline i\tau & \kappa\tau \end{array} = \begin{array}{c|cc} 1 & 0 \\ \hline 0 & 1 \end{array}$$

$$\stackrel{t}{+} \times \begin{array}{c|cc} 1 & 0 \\ \hline 0 & -1 \end{array} = 0 \Rightarrow \begin{array}{c|cc} \kappa\bar{\sigma} & -i\bar{\tau} \\ \hline -i\bar{\sigma} & \kappa\bar{\tau} \end{array} \stackrel{t}{+} \begin{array}{c|cc} \kappa\sigma & i\sigma \\ \hline i\tau & \kappa\tau \end{array} \times \begin{array}{c|cc} 1 & 0 \\ \hline 0 & -1 \end{array} = 0$$

$$= \begin{array}{c|cc} \kappa\bar{\sigma} & -i\bar{\tau} \\ \hline -i\bar{\sigma} & \kappa\bar{\tau} \end{array} \quad \begin{array}{c|cc} 1 & 0 \\ \hline 0 & -1 \end{array} \quad \begin{array}{c|cc} \kappa\sigma & i\sigma \\ \hline i\tau & \kappa\tau \end{array}$$

$$\begin{array}{c|cc} \kappa\bar{\sigma} & -\kappa i\bar{\sigma} \\ \hline -j\bar{\sigma} & ij\bar{\sigma} \end{array} \quad {}^n\mathbb{H}_n^C \quad \begin{array}{c|cc} \kappa\sigma & \sigma j \\ \hline \kappa\sigma i & \sigma ji \\ \text{unit} & \end{array} \quad \xrightarrow{\begin{array}{c|cc} 0 & j \\ \hline -j & 0 \end{array}} \quad {}_2\mathbb{H}_n^C$$

$$\begin{aligned}
& \Gamma \in {}^n\mathbb{H}_n^C \Rightarrow \begin{array}{c|cc} \kappa\bar{\sigma} & -\kappa i\bar{\sigma} \\ \hline -j\bar{\sigma} & ij\bar{\sigma} \end{array} \not\propto \begin{array}{c|cc} \kappa\sigma & \sigma j \\ \hline \kappa\sigma i & \sigma ji \\ \text{unit} & \end{array} \quad \begin{array}{c|cc} i & 0 \\ \hline 0 & i \end{array} \quad \overbrace{\begin{array}{c|cc} \kappa\bar{\sigma} & -\kappa i\bar{\sigma} \\ \hline -j\bar{\sigma} & ij\bar{\sigma} \end{array}}^* \not\propto \begin{array}{c|cc} \kappa\sigma & \sigma j \\ \hline \kappa\sigma i & \sigma ji \end{array} \\
& = \begin{array}{c|cc} \kappa\bar{\sigma} & -\kappa i\bar{\sigma} \\ \hline -j\bar{\sigma} & ij\bar{\sigma} \end{array} \not\propto \underbrace{\begin{array}{c|cc} \kappa\sigma & \sigma j \\ \hline \kappa\sigma i & \sigma ji \\ 0 & i \end{array}}_{= \begin{array}{c|cc} 0 & 1 \\ \hline -1 & 0 \end{array}} \quad \begin{array}{c|cc} \kappa\bar{\sigma} & -\kappa i\bar{\sigma} \\ \hline -j\bar{\sigma} & ij\bar{\sigma} \end{array} \not\propto \begin{array}{c|cc} 0 & 1 \\ \hline -1 & 0 \end{array} \quad \not\propto \begin{array}{c|cc} \kappa\sigma & \sigma j \\ \hline \kappa\sigma i & \sigma ji \end{array} \\
& = \begin{array}{c|cc} \kappa\bar{\sigma} & -\kappa i\bar{\sigma} \\ \hline -j\bar{\sigma} & ij\bar{\sigma} \end{array} \quad \underbrace{\begin{array}{c|cc} \not\propto & \not\propto \\ \not\propto & \not\propto \end{array}}_{= \begin{array}{c|cc} 1 & 0 \\ \hline 0 & 1 \end{array}} \quad \begin{array}{c|cc} 0 & 1 \\ \hline -1 & 0 \end{array} \quad \begin{array}{c|cc} \kappa\sigma & \sigma j \\ \hline \kappa\sigma i & \sigma ji \end{array} = \begin{array}{c|cc} \kappa\bar{\sigma} & -\kappa i\bar{\sigma} \\ \hline -j\bar{\sigma} & ij\bar{\sigma} \end{array} \quad \begin{array}{c|cc} 0 & 1 \\ \hline -1 & 0 \end{array} \quad \begin{array}{c|cc} \kappa\sigma & \sigma j \\ \hline \kappa\sigma i & \sigma ji \end{array} = \begin{array}{c|cc} i & 0 \\ \hline 0 & i \end{array} \\
& \Gamma \not\propto \begin{array}{c|cc} 1 & 0 \\ \hline 0 & -1 \end{array} = 0 \Rightarrow \begin{array}{c|cc} \kappa\bar{\sigma} & -\kappa i\bar{\sigma} \\ \hline -j\bar{\sigma} & ij\bar{\sigma} \end{array} \not\propto \begin{array}{c|cc} \kappa\sigma & \sigma j \\ \hline \kappa\sigma i & \sigma ji \end{array} \not\propto \begin{array}{c|cc} 0 & \kappa j \\ \hline -\kappa j & 0 \end{array} = 0 \\
& = \begin{array}{c|cc} \kappa\bar{\sigma} & -\kappa i\bar{\sigma} \\ \hline -j\bar{\sigma} & ij\bar{\sigma} \end{array} \quad \begin{array}{c|cc} 1 & 0 \\ \hline 0 & -1 \end{array} \quad \begin{array}{c|cc} \kappa\sigma & \sigma j \\ \hline \kappa\sigma i & \sigma ji \end{array}
\end{aligned}$$