

$$\frac{\bar{\sigma} \mid 0 \quad 1 \mid i}{0 \mid \bar{\tau} \quad 1 \mid -i} \xrightarrow[n_{\mathbb{R}^n}]{\text{unit}} \frac{1 \mid 1}{-i \mid i} \xrightarrow[\text{unit}]{\sigma \mid 0 \quad 0 \mid \tau} \xrightarrow{\frac{0 \mid \pm}{\pm \mid 0}}_{1:1} n_{\mathbb{C}^n}$$

$$\Gamma \in n_{\mathbb{R}^n} \Rightarrow \frac{\bar{\sigma} \mid 0 \quad 1 \mid i}{0 \mid \bar{\tau} \quad 1 \mid -i} \Gamma \frac{1 \mid 1}{-i \mid i} \frac{\sigma \mid 0}{0 \mid \tau} \frac{1 \mid 0}{0 \mid -1} \overbrace{\frac{\bar{\sigma} \mid 0 \quad 1 \mid i}{0 \mid \bar{\tau} \quad 1 \mid -i} \Gamma \frac{1 \mid 1}{-i \mid i} \frac{\sigma \mid 0}{0 \mid \tau}}^*$$

$$= \frac{\bar{\sigma} \mid 0 \quad 1 \mid i}{0 \mid \bar{\tau} \quad 1 \mid -i} \Gamma \underbrace{\frac{1 \mid 1}{-i \mid i} \frac{\sigma \mid 0}{0 \mid \tau} \frac{1 \mid 0}{0 \mid -1}}_{= \frac{0 \mid i}{-i \mid 0} = \frac{0 \mid 1}{-1 \mid 0} \frac{i \mid 0}{0 \mid i}} \frac{\bar{\sigma} \mid 0 \quad 1 \mid i}{0 \mid \bar{\tau} \quad 1 \mid -i} \Gamma \frac{1 \mid 1}{-i \mid i} \frac{\sigma \mid 0}{0 \mid \tau}$$

$$= \frac{\bar{\sigma} \mid 0 \quad 1 \mid i}{0 \mid \bar{\tau} \quad 1 \mid -i} \Gamma \frac{0 \mid 1}{-1 \mid 0} \underbrace{\frac{i \mid 0}{0 \mid i} \Gamma}_{= \Gamma \frac{i \mid 0}{0 \mid i}} \frac{1 \mid 1}{-i \mid i} \frac{\sigma \mid 0}{0 \mid \tau}$$

$$= \frac{\bar{\sigma} \mid 0 \quad 1 \mid i}{0 \mid \bar{\tau} \quad 1 \mid -i} \Gamma \underbrace{\frac{0 \mid 1}{-1 \mid 0} \Gamma}_{= \frac{0 \mid 1}{-1 \mid 0}} \frac{i \mid 0}{0 \mid i} \frac{1 \mid 1}{-i \mid i} \frac{\sigma \mid 0}{0 \mid \tau} = \frac{\bar{\sigma} \mid 0 \quad 1 \mid i}{0 \mid \bar{\tau} \quad 1 \mid -i} \frac{0 \mid 1}{-1 \mid 0} \frac{i \mid 0}{0 \mid i} \frac{1 \mid 1}{-i \mid i} \frac{\sigma \mid 0}{0 \mid \tau} = \frac{1 \mid 0}{0 \mid -1}$$

$$n_{\mathbb{R}^n} \times \frac{\bar{\sigma} \mid 0 \quad 1 \mid i}{0 \mid \bar{\tau} \quad 1 \mid -i} \frac{0 \mid \pm}{\pm \mid 0} = 0 \Rightarrow \frac{\bar{\sigma} \mid 0 \quad 1 \mid i}{0 \mid \bar{\tau} \quad 1 \mid -i} n_{\mathbb{R}^n} \frac{1 \mid 1}{-i \mid i} \frac{\sigma \mid 0}{0 \mid \tau} \times \frac{0 \mid \pm}{\pm \mid 0} = \frac{\bar{\sigma} \mid 0 \quad 1 \mid i}{0 \mid \bar{\tau} \quad 1 \mid -i} \frac{0 \mid \pm}{\pm \mid 0} \frac{1 \mid 1}{-i \mid i} \frac{\sigma \mid 0}{0 \mid \tau} = \bar{\sigma} \bar{\tau} \frac{0 \mid \pm}{\pm \mid 0}$$

$$\frac{\bar{\sigma} \mid 0}{0 \mid \bar{\tau}} \frac{1 \mid j}{1 \mid -j} \underset{\text{unit}}{n_2 \mathbb{C}_n^\Omega} \frac{1 \mid 1}{-j \mid j} \frac{\sigma \mid 0}{0 \mid \tau} \xrightarrow{\frac{0 \mid \bar{\sigma} i \tau}{\bar{\tau} i \sigma \mid 0}} \underset{1:1}{n_1 \mathbb{H}_n^U}$$

$$\begin{aligned} \Gamma \in n_2 \mathbb{C}_n^\Omega &\Rightarrow \frac{\bar{\sigma} \mid 0}{0 \mid \bar{\tau}} \frac{1 \mid j}{1 \mid -j} \Gamma \frac{1 \mid 1}{-j \mid j} \frac{\sigma \mid 0}{0 \mid \tau} \frac{1 \mid 0}{0 \mid -1} \overbrace{\frac{\bar{\sigma} \mid 0}{0 \mid \bar{\tau}} \frac{1 \mid j}{1 \mid -j} \Gamma \frac{1 \mid 1}{-j \mid j} \frac{\sigma \mid 0}{0 \mid \tau}}^* \\ &= \frac{\bar{\sigma} \mid 0}{0 \mid \bar{\tau}} \frac{1 \mid j}{1 \mid -j} \Gamma \underbrace{\frac{1 \mid 1}{-j \mid j} \frac{\sigma \mid 0}{0 \mid \tau} \frac{1 \mid 0}{0 \mid -1} \frac{\bar{\sigma} \mid 0}{0 \mid \bar{\tau}} \frac{1 \mid j}{1 \mid -j}}_{= \frac{0 \mid j}{-j \mid 0} = \frac{0 \mid 1}{-1 \mid 0} \frac{j \mid 0}{0 \mid j}} \Gamma \frac{1 \mid 1}{-j \mid j} \frac{\sigma \mid 0}{0 \mid \tau} \\ &= \frac{\bar{\sigma} \mid 0}{0 \mid \bar{\tau}} \frac{1 \mid j}{1 \mid -j} \Gamma \frac{0 \mid 1}{-1 \mid 0} \underbrace{\frac{j \mid 0}{0 \mid j}}_{= \Gamma \frac{j \mid 0}{0 \mid j}} \Gamma \frac{\sigma \mid 0}{-j \sigma \mid j \tau} \end{aligned}$$

$$= \frac{\bar{\sigma} \mid 0}{0 \mid \bar{\tau}} \frac{1 \mid j}{1 \mid -j} \Gamma \underbrace{\frac{0 \mid 1}{-1 \mid 0}}_{= \frac{0 \mid 1}{-1 \mid 0}} \Gamma \frac{j \mid 0}{0 \mid j} \frac{1 \mid 1}{-j \mid j} \frac{\sigma \mid 0}{0 \mid \tau} = \frac{\bar{\sigma} \mid 0}{0 \mid \bar{\tau}} \frac{1 \mid j}{1 \mid -j} \frac{0 \mid 1}{-1 \mid 0} \frac{j \mid 0}{0 \mid j} \frac{1 \mid 1}{-j \mid j} \frac{\sigma \mid 0}{0 \mid \tau} = \frac{1 \mid 0}{0 \mid -1}$$

$$\begin{aligned} n_2 \mathbb{C}_n^\Omega \rtimes \frac{i \mid 0}{0 \mid i} = 0 &\Rightarrow \frac{\bar{\sigma} \mid 0}{0 \mid \bar{\tau}} \frac{1 \mid j}{1 \mid -j} \underset{\text{unit}}{n_2 \mathbb{C}_n^\Omega} \frac{1 \mid 1}{-j \mid j} \frac{\sigma \mid 0}{0 \mid \tau} \rtimes \frac{0 \mid \bar{\sigma} i \tau}{\bar{\tau} i \sigma \mid 0} = 0 \\ &= \frac{\bar{\sigma} \mid 0}{0 \mid \bar{\tau}} \frac{1 \mid j}{1 \mid -j} \frac{i \mid 0}{0 \mid i} \frac{1 \mid 1}{-j \mid j} \frac{\sigma \mid 0}{0 \mid \tau} \end{aligned}$$