$$\begin{array}{cc} 0 & \begin{array}{c|c} 1 & 0 \\ \hline 0 & 1 \end{array} \\[2ex] \hline -\begin{array}{c|c} 1 & 0 \\ \hline 0 & 1 \end{array} & 0 \end{array} \qquad {}^{n}_{4}\mathbb{R}^{\Omega}_{n} \qquad \begin{array}{c|c} I & 0 \\ \hline 0 & -I \end{array}$$

$${}^{n}_{\mathbb{R}2}\mathbb{C}^{\Omega}_{n} \qquad\qquad {}^{n}_{2}\mathbb{R}^{\Omega}_{n} \boldsymbol{\times} {}^{n}_{2}\mathbb{R}^{\Omega}_{n}$$

$$\begin{array}{cc} \begin{array}{c|c} 1 & 0 \\ \hline 0 & 1 \end{array} & 0 \\[2ex] \hline 0 & -\begin{array}{c|c} 1 & 0 \\ \hline 0 & 1 \end{array} \end{array} \qquad {}^{n}_{=2}\mathbb{R}^{\Omega}_{n} \qquad \begin{array}{c|c} 0 & I \\ \hline I & 0 \end{array}$$

$$g \in {}^{n}_{4}\mathbb{R}^{\Omega}_{n} \Leftrightarrow \overset{+}{g}\, \begin{array}{c|c} \cancel{J} & 0 \\ \hline 0 & -\cancel{J} \end{array}\, g = \begin{array}{c|c} \cancel{J} & 0 \\ \hline 0 & -\cancel{J} \end{array}$$

$$\overbrace{\begin{array}{c|c} 0 & I \\ \hline I & 0 \end{array}}^{-1} - z \; \underbrace{\begin{array}{c|c} 0 & I \\ \hline I & 0 \end{array}} + z \; \in \; {}_{4}^{n}\mathbb{R}_n^{\Omega} \;\Leftrightarrow\; z\frac{\begin{array}{c|c} 0 & \jmath \\ \hline -\jmath & 0 \end{array}}{} = \overbrace{z\frac{\begin{array}{c|c} 0 & \jmath \\ \hline -\jmath & 0 \end{array}}{}}^{+} \in \; {}_{4}^{n}\mathbb{R}_n^{\mathbb{U}} \;\Leftrightarrow\; z = \begin{array}{c|c} A & B \\ \hline C & -\jmath A \jmath \end{array} \quad \begin{cases} B\jmath = \overbrace{B\jmath}^{*} \\ C\jmath = \overbrace{C\jmath}^{*} \end{cases}$$

$$\overbrace{\begin{array}{c|c} 0 & I \\ \hline I & 0 \end{array}}^{-1} + z \; \underbrace{\begin{array}{c|c} 0 & I \\ \hline I & 0 \end{array}} - z \;=\; \overset{-1}{g} = \begin{array}{c|c} \jmath & 0 \\ \hline 0 & -\jmath \end{array} \; \overset{+}{g} \; \overbrace{\begin{array}{c|c} \jmath & 0 \\ \hline 0 & -\jmath \end{array}}^{-1} \;=\; \begin{array}{c|c} \jmath & 0 \\ \hline 0 & -\jmath \end{array} \; \underbrace{\begin{array}{c|c} 0 & I \\ \hline I & 0 \end{array}} + \overset{+}{z} \; \overbrace{\begin{array}{c|c} 0 & I \\ \hline I & 0 \end{array}}^{-1} - \overset{+}{z} \; \begin{array}{c|c} \jmath & 0 \\ \hline 0 & -\jmath \end{array}^{-1}$$

$$= \; \underbrace{\begin{array}{c|c} 0 & \jmath \\ \hline -\jmath & 0 \end{array} + \begin{array}{c|c} \jmath & 0 \\ \hline 0 & -\jmath \end{array}}_{} \; \overset{+}{z} \; \overbrace{\begin{array}{c|c} 0 & \jmath \\ \hline -\jmath & 0 \end{array} - \begin{array}{c|c} \jmath & 0 \\ \hline 0 & -\jmath \end{array}}^{-1} \; \overset{+}{z}$$

$$\underbrace{\begin{array}{c|c} 0 & I \\ \hline I & 0 \end{array}}_{} - z \; \underbrace{\begin{array}{c|c} 0 & \jmath \\ \hline -\jmath & 0 \end{array} - \begin{array}{c|c} \jmath & 0 \\ \hline 0 & -\jmath \end{array}}_{} \overset{+}{z} \;=\; \underbrace{\begin{array}{c|c} 0 & I \\ \hline I & 0 \end{array}}_{} + z \; \underbrace{\begin{array}{c|c} 0 & \jmath \\ \hline -\jmath & 0 \end{array} + \begin{array}{c|c} \jmath & 0 \\ \hline 0 & -\jmath \end{array}}_{} \overset{+}{z}$$

$$z\frac{\begin{array}{c|c} 0 & \jmath \\ \hline -\jmath & 0 \end{array}}{} \;=\; -\frac{\begin{array}{c|c} 0 & I \\ \hline I & 0 \end{array}}{}\frac{\begin{array}{c|c} \jmath & 0 \\ \hline 0 & -\jmath \end{array}}{} \; \overset{+}{z} \;=\; \frac{\begin{array}{c|c} 0 & \jmath \\ \hline -\jmath & 0 \end{array}}{} \; \overset{+}{z} \;=\; \overbrace{z\frac{\begin{array}{c|c} 0 & \jmath \\ \hline -\jmath & 0 \end{array}}{}}^{+}$$

$$\frac{\begin{array}{c|c} 0 & I \\ \hline I & 0 \end{array}}{} \; z = -z \; \frac{\begin{array}{c|c} 0 & I \\ \hline I & 0 \end{array}}{} \;\Leftrightarrow\; z = \begin{array}{c|c} A & B \\ \hline -B & -A \end{array} \quad \begin{cases} A\jmath = \overbrace{A\jmath}^{*} \\ B\jmath = \overbrace{B\jmath}^{*} \end{cases}$$

$${}_{2}^{n}\mathbb{R}_n^{\mathbb{U}} \ni B\jmath \asymp \frac{\begin{array}{c|c} 0 & B \\ \hline -B & 0 \end{array}}{} \xrightarrow{\hspace{3cm}} \frac{{}_{\times 2}^{n}\mathbb{R}_n^{\Omega}}{{}_{2}^{n}\mathbb{R}_n^{\Omega}} \ni \frac{\overbrace{I+B}^{-1}\underbrace{I-B}\; \bigg| \; 0}{0 \; \bigg| \; \overbrace{I-B}^{-1}\underbrace{I+B}}$$

$${}_{4}^{n}\mathbb{R}_n^{\mathbb{U}} \xrightarrow{\hspace{8cm}} {}_{4}^{n}\mathbb{R}_n^{\Omega}$$

$${}_{2}^{n}\mathbb{R}_n^{\mathbb{U}} \ni A\jmath \asymp \frac{\begin{array}{c|c} A & 0 \\ \hline 0 & -A \end{array}}{} \xrightarrow{\hspace{6cm}} \frac{{}_{\mathbb{R}2}^{n}\mathbb{C}_n^{\Omega}}{{}_{2}^{n}\mathbb{R}_n^{\Omega}}$$