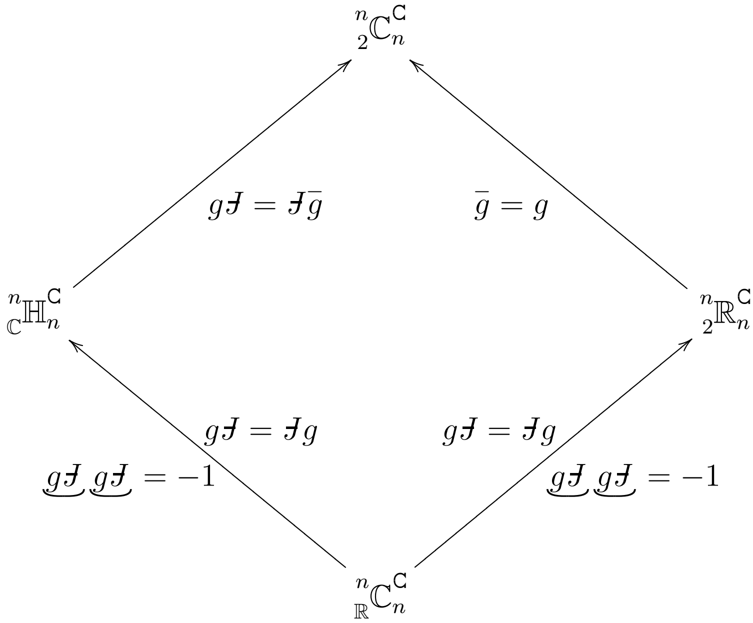

$${}^n_2\mathbb{C}^{\mathsf{C}}_n \ni \begin{array}{c|c} a & b \\ \hline c & d \end{array}$$

$${}^n_2\mathbb{R}^{\mathsf{C}}_n \ni \begin{array}{c|c} a & b \\ \hline c & d \end{array}$$

$${}^n_{\mathbb{C}}\mathbb{H}^{\mathsf{C}}_n \ni \begin{array}{c|c} a & b \\ \hline -\bar{b} & \bar{a} \end{array}$$

$$\begin{array}{c|c} \bar{a} & \bar{b} \\ \hline \bar{c} & \bar{d} \end{array} = \Finv \begin{array}{c|c} a & b \\ \hline c & d \end{array} \Finv^{-1} = \begin{array}{c|c} d & -c \\ \hline -b & a \end{array} \iff \begin{cases} a = \bar{d} \\ b = -\bar{c} \end{cases}$$

$${}^n_{\mathbb{R}}\mathbb{C}^{\mathsf{C}}_n \ni \begin{array}{c|c} a & b \\ \hline -b & a \end{array}$$

$$\begin{array}{c|c} a & b \\ \hline c & d \end{array} = \Finv \begin{array}{c|c} a & b \\ \hline c & d \end{array} \Finv^{-1} = \begin{array}{c|c} d & -c \\ \hline -b & a \end{array} \iff \begin{cases} a = d \\ b = -c \end{cases}$$

$$\begin{array}{c|c} a & b \\ \hline -\bar{b} & \bar{a} \end{array} = \Finv \begin{array}{c|c} a & b \\ \hline -\bar{b} & \bar{a} \end{array} \Finv^{-1} = \begin{array}{c|c} \bar{a} & \bar{b} \\ \hline -b & a \end{array} \iff \begin{cases} a = \bar{a} \\ b = \bar{b} \end{cases}$$

$$ {}^{n}_{\mathbb{R}}\mathbb{C}^{\mathsf{C}}_{n} = \frac{g \in \begin{cases} {}^{n}_{\mathbb{C}}\mathbb{H}^{\mathsf{C}}_{n} \\ {}^{n}_{2}\mathbb{R}^{\mathsf{C}}_{n} \end{cases}}{g\text{Ɉ} = \text{Ɉ}g} $$

$$ \begin{cases} g\text{Ɉ} = \text{Ɉ}\bar{g} \\ g\text{Ɉ} = \text{Ɉ}g \end{cases} \Longrightarrow g = \bar{g} $$

$$ \text{Ɉ} \begin{array}{c|c} a & b \\ \hline -\bar{b} & \bar{a} \end{array} \overset{-1}{\text{Ɉ}} = \begin{array}{c|c} \bar{a} & \bar{b} \\ \hline -b & a \end{array} = \begin{array}{c|c} a & b \\ \hline -\bar{b} & \bar{a} \end{array} \Leftrightarrow \begin{cases} a = \bar{a} \\ b = \bar{b} \end{cases} $$

$$ \begin{cases} g\text{Ɉ} = \text{Ɉ}g \\ g = \bar{g} \end{cases} \Longrightarrow g\,\text{Ɉ} = \text{Ɉ}\,\bar{g} $$

$$ \text{Ɉ} \begin{array}{c|c} a & b \\ \hline c & d \end{array} \overset{-1}{\text{Ɉ}} = \begin{array}{c|c} d & -c \\ \hline -b & a \end{array} = \begin{array}{c|c} a & b \\ \hline c & d \end{array} \Leftrightarrow \begin{cases} a = d \\ b = -c \end{cases} $$

$$ \overbrace{\text{Ɉ} - z}^{-1} \underbrace{\text{Ɉ} + z} \in {}^{n}_{2}\mathbb{R}^{\mathsf{C}}_{n} \Leftrightarrow z \in {}^{n}_{2}\mathbb{R}^{\mathbb{C}}_{n} $$

$$ \frac{\begin{cases} {}^{n}_{\mathbb{C}}\mathbb{H}^{\mathsf{C}}_{n} \\ {}^{n}_{2}\mathbb{R}^{\mathsf{C}}_{n} \end{cases}}{{}^{n}_{\mathbb{R}}\mathbb{C}^{\mathsf{C}}_{n}} = \frac{g \in \begin{cases} {}^{n}_{\mathbb{C}}\mathbb{H}^{\mathsf{C}}_{n} \\ {}^{n}_{2}\mathbb{R}^{\mathsf{C}}_{n} \end{cases}}{\underbrace{g\text{Ɉ}}\,\underbrace{\text{Ɉ}g} = -1} $$

$$ \text{Ɉ}\,z = -z\,\text{Ɉ} \Leftrightarrow z = \begin{array}{c|c} a & b \\ \hline b & -a \end{array} $$

$$ \begin{array}{c|c} a & b \\ \hline b & -a \end{array} J = \begin{array}{c|c} b & a \\ \hline -a & b \end{array} \in {}^{n}_{\mathbb{R}}\mathbb{C}^{\mathbb{C}}_{n} $$

$$\begin{array}{c|c} a & 0 \\ \hline 0 & -a \end{array} \in \longrightarrow \frac{{}^{n}_{\mathbb{C}}\mathbb{H}_n^{\mathsf{C}}}{{}^{n}_{\mathbb{R}}\mathbb{C}_n^{\mathsf{C}}} \ni \begin{array}{c|c} \overbrace{1-a^2}^{-1}\overbrace{1+a^2} & 2a\overbrace{1-a^2}^{-1} \\ \hline 2a\underbrace{1-a^2}_{-1} & \underbrace{1+a^2}\underbrace{1-a^2}_{-1} \end{array}$$

$${}^{n}_{2}\mathbb{C}_n \xrightarrow{\overbrace{\not{J}-z}^{-1}\underbrace{\not{J}+z}} {}^{n}_{2}\mathbb{C}_n^{\mathsf{C}}$$

$$\begin{array}{c|c} a & b \\ \hline b & -a \end{array} \in {}^{n}_{\mathbb{R}}\mathbb{C}_n^{\mathbb{C}}J \longrightarrow \frac{{}^{n}_{2}\mathbb{R}_n^{\mathsf{C}}}{{}^{n}_{\mathbb{R}}\mathbb{C}_n^{\mathsf{C}}} \ni \begin{array}{c|c} \overbrace{1+b}^{-1}\overbrace{1-b} & 0 \\ \hline 0 & \underbrace{1-b}_{-1}\underbrace{1+b} \end{array}$$