

$$\begin{array}{ccc}
V[\boldsymbol{v}]_V = \boldsymbol{v} \in \mathcal{V} \supseteq \begin{cases} \mathfrak{V} = \{\boldsymbol{v}_j\} \\ \mathfrak{V}' = \{\boldsymbol{v}'_j\} \end{cases} & \begin{array}{c} \xleftarrow{T^{-1}(\cdot)} \\ \xrightarrow{T(\cdot)} \end{array} & T(\boldsymbol{v}) = \boldsymbol{w} \in \mathcal{W} \supseteq \begin{cases} \mathfrak{W} = \{\boldsymbol{w}_j\} \\ \mathfrak{W}' = \{\boldsymbol{w}'_j\} \end{cases} \\
\\
\begin{array}{ccc}
\begin{array}{c} \curvearrowright \\ V'^{-1} \\ \curvearrowleft \end{array} & \begin{array}{c} \downarrow V^{-1} \\ V^{-1}\boldsymbol{v} = [\boldsymbol{v}]_V \in \mathbb{F}^n \\ \uparrow [V]_{V'} \end{array} & \begin{array}{c} \downarrow W^{-1} \\ [T(\boldsymbol{v})]_W = [\boldsymbol{w}]_W \in \mathbb{F}^m \\ \uparrow [W]_{W'} \end{array} \\
& \begin{array}{c} \xleftarrow{T^{-1}} \\ T = [T(V)]_W \\ \xrightarrow{\quad} \end{array} & \\
& \begin{array}{c} \downarrow [V']_V \\ [V]_{V'} \\ \uparrow \end{array} & \begin{array}{c} \downarrow [W']_{W'} \\ [W]_{W'} \\ \uparrow \end{array} \\
V'^{-1}\boldsymbol{v} = [V]_{V'}, [\boldsymbol{v}]_V = [\boldsymbol{v}]_{V'} \in \mathbb{F}^n & \begin{array}{c} \xleftarrow{T'^{-1}} \\ T' = [T(V')]_{W'} \\ \xrightarrow{\quad} \end{array} & [T(\boldsymbol{v})]_{W'} = [\boldsymbol{w}]_{W'} \in \mathbb{F}^m \\
& \begin{array}{c} \curvearrowright \\ W'^{-1} \\ \curvearrowleft \end{array} &
\end{array}$$