

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