

$$\begin{aligned}
\mathbb{1} \cdot 1 &= \mathcal{U}_h^h \mathcal{V} 1 = \mathbb{1} \cdot \mathbb{1} = \mathbb{1} \cdot \mathbb{1} 1 \\
{}^h \mathcal{U} 1 &= {}^h \mathcal{V} \cdot \mathbb{1} 1 = {}^h \mathcal{U} \mathbb{1} 1 = {}^h \mathcal{U} \cdot \mathbb{1} 1 \\
\mathbb{1} \cdot \mathbb{1} &= \mathcal{U}_h^h \mathcal{U} \mathbb{1} = \mathbb{1} \cdot \mathbb{1} \mathbb{1} = \mathbb{1} \cdot \mathbb{1} \mathbb{1} \\
{}^h \mathcal{U} \mathbb{1} &= {}^h \mathcal{U} \cdot \mathbb{1} \mathbb{1} = {}^h \mathcal{V} \mathbb{1} \mathbb{1} = {}^h \mathcal{V} \cdot \mathbb{1} \mathbb{1} \\
\mathbb{1} 1 &= \mathbb{1} \cdot \mathbb{1} 1 = \mathbb{1} \cdot \mathbb{1} 1 = \mathcal{U}_h^h \mathcal{V} 1 \\
\mathbb{1} \mathbb{1} &= \mathbb{1} \cdot \mathbb{1} \mathbb{1} = \mathbb{1} \cdot \mathbb{1} \mathbb{1} = \mathcal{U}_h^h \mathcal{U} \mathbb{1}
\end{aligned}$$

$$\mathbb{1} \times \mathbb{1} = \mathbb{1} \eta \mathbb{1}$$

$$\mathbb{h} \xrightarrow[\mathbb{1}]{\mathbb{1}} G(\mathbb{1})$$

$$\mathbb{1} = \mathbb{1}_h^* \eta \mathbb{1}_h$$

$$\mathbb{1} \times_h \mathbb{1} = \left(\mathbb{1}_h 1 \right) \times \left(\mathbb{1}_h 1 \right) = \left(\mathbb{1}_h 1 \right)^* \eta \left(\mathbb{1}_h 1 \right) = \mathbb{1} \mathbb{1}_h^* \eta \mathbb{1}_h 1 = \mathbb{1} \mathbb{1}_h \mathbb{1} = \left({}^h \mathcal{V} 1 \right) \times \left({}^h \mathcal{V} 1 \right)$$

$$\mathbb{1}^{-1} = \left(\mathbb{1} \eta^{-1} \mathbb{1}^* \right)^{-1} = \mathbb{1}_h^* \eta \mathbb{1}_h = \mathbb{1}$$

$$\begin{aligned}
\mathbb{1} \cdot 1 &= \mathcal{U}_h \mathcal{V}^h \cdot 1 = \mathbb{1} \cdot \mathbb{1} \cdot 1 = \mathbb{1} \cdot \mathbb{1} \cdot 1 \\
{}^h \mathcal{V} \cdot 1 &= {}^h \mathcal{V} \cdot \mathbb{1} \cdot 1 = {}^h \mathcal{V} \cdot \mathbb{1} \cdot 1 = {}^h \mathcal{V} \cdot \mathbb{1} \cdot 1 \\
\mathbb{1} \cdot \mathbb{1} &= \mathcal{U}_h \mathcal{V}^h \cdot \mathbb{1} = \mathbb{1} \cdot \mathbb{1} \cdot \mathbb{1} = \mathbb{1} \cdot \mathbb{1} \cdot \mathbb{1} \\
{}^h \mathcal{V} \cdot \mathbb{1} &= {}^h \mathcal{V} \cdot \mathbb{1} \cdot \mathbb{1} = {}^h \mathcal{V} \cdot \mathbb{1} \cdot \mathbb{1} = {}^h \mathcal{V} \cdot \mathbb{1} \cdot \mathbb{1} \\
\mathbb{1} \cdot \mathbb{1} &= \mathbb{1} \cdot \mathbb{1} \cdot \mathbb{1} = \mathbb{1} \cdot \mathbb{1} \cdot \mathbb{1} = \mathcal{U}_h \mathcal{V}^h \cdot \mathbb{1} \\
\mathbb{1} \cdot \mathbb{1} &= \mathbb{1} \cdot \mathbb{1} \cdot \mathbb{1} = \mathbb{1} \cdot \mathbb{1} \cdot \mathbb{1} = \mathcal{U}_h \mathcal{V}^h \cdot \mathbb{1}
\end{aligned}$$

$\mathbb{1} \ni \mathbb{1}^j$ basis

$$\mathbb{1}^i \cdot \mathbb{1}^j = \delta^j = \mathbb{1} \cdot \mathbb{1}^j$$

$$\mathbb{1}^i = \mathbb{1}$$

$$\mathbb{1}^i \times \mathbb{1}^j = \mathbb{1}^i \cdot \eta \cdot \mathbb{1}^j = \mathbb{1} \cdot \eta \cdot \mathbb{1}^j = \eta^j$$

$$\mathbb{1}^i \times_h \mathbb{1}^j = \mathbb{1}^i \cdot \eta_h \cdot \mathbb{1}^j = \mathbb{1} \cdot \eta_h \cdot \mathbb{1}^j = \eta_h^j$$

$\mathbb{1} \ni \mathbb{1}^j = \mathbb{1} \cdot \mathbb{1}^j$ basis

$$\mathbb{1}^i \times_h \mathbb{1}^j = \left(\mathbb{1} \cdot \mathbb{1}^i \right)^* \left(\eta_h \cdot \mathbb{1}^j \right) \cdot \mathbb{1} \cdot \mathbb{1}^j = \mathbb{1}^i \cdot \eta \cdot \mathbb{1}^j = \eta^j$$

$$\mathbb{h} \xrightarrow{\mathbb{1}} {}_m \mathbb{K}^m$$

$$\mathbb{1}^j = \mathbb{1}^j \cdot \eta \cdot \mathbb{1}^j$$

${}^h \mathcal{V}^j = {}^h \mathcal{V} \cdot \mathbb{1}^j$ basis

$${}^h \mathcal{V}^j = {}^h \mathcal{V} \cdot \mathbb{1}^j = {}^h \mathcal{V} \cdot \mathbb{1} \cdot \mathbb{1}^j = {}^h \mathcal{V} \cdot \mathbb{1}^j \text{ basis}$$

$${}^h \mathcal{V} \times_h {}^h \mathcal{V}^j = \eta^j$$