

$$\circledast \underline{K}^C = \underline{K}^C \blacktriangleright \circledast \underline{K}^C = \frac{b \in \underline{K}^C}{b \times \circledast \underline{K}^C = 0} = \circledast \underline{K}^C$$

$$\mathbb{1} \circledast \underline{K}^C = \mathbb{1} \underline{K}^C$$

$$\mathbb{R} \circledast \underline{K}^C = \mathbb{R} \underline{K}^C \blacktriangleright \mathbb{R} \circledast \underline{K}^C = \frac{b \in \mathbb{R} \underline{K}^C}{b \times \mathbb{R} \circledast \underline{K}^C = 0} = \mathbb{R} \circledast \underline{K}^C = \circledast \underline{K}^C \times \mathbb{1} \circledast \underline{K}^C$$

$$\circledast \underline{K}^C \sqsubseteq_{\text{Car}} \circledast \underline{K}^C = \underline{K}^C \blacktriangleright \mathbb{1} \circledast \underline{K}^C = \frac{b \in \underline{K}^C}{b \times \mathbb{1} \circledast \underline{K}^C = 0}$$

$$\circledast \underline{K}^C = \circledast \underline{K}^C \times \circledast \underline{K}^C = \underbrace{\circledast \underline{K}^C \times \circledast \underline{K}^C}_{\circledast \underline{K}^C} \times \circledast \underline{K}^C$$

$$\mathbb{1} \circledast \underline{K}^C | \mathbb{1} = 0 \Rightarrow \mathbb{R} \mathbb{1} \circledast \underline{K}^C = \mathbb{R} \mathbb{1} \circledast \underline{K}^C \sqsubseteq \underline{K}^C$$

$$\mathbb{R} \mathbb{1} \circledast \underline{K}^C \ni b = \mathfrak{b} + \mathfrak{c} : \mathbb{R} \circledast \underline{K}^C \ni \mathfrak{b} = \mathfrak{b} + \mathfrak{c} \Rightarrow \mathfrak{b} \in \mathbb{R} \mathbb{1} \circledast \underline{K}^C \ni \mathfrak{c} :$$

$$\begin{cases} \mathfrak{b} \times \mathfrak{b} + \mathfrak{c} \times \mathfrak{b} = \underbrace{\mathfrak{b} + \mathfrak{c}} \times \mathfrak{b} = \mathfrak{b} \mathbb{1} \mathfrak{b} + \mathfrak{c} \mathbb{1} \mathfrak{b} = \mathfrak{b} \mathbb{1} \mathfrak{b} + \mathfrak{c} \mathbb{1} \mathfrak{b} \\ \mathfrak{b} \times \mathfrak{c} + \mathfrak{c} \times \mathfrak{b} = \underbrace{\mathfrak{b} + \mathfrak{c}} \times \mathfrak{c} = \mathfrak{b} \mathbb{1} \mathfrak{c} + \mathfrak{c} \mathbb{1} \mathfrak{c} = 0 \end{cases} \Rightarrow \begin{cases} \mathfrak{b} \times \mathfrak{b} = \mathfrak{b} \mathbb{1} \mathfrak{b} : \mathfrak{c} \times \mathfrak{b} = \mathfrak{c} \mathbb{1} \mathfrak{b} \\ \mathfrak{b} \times \mathfrak{c} = 0 : \mathfrak{c} \times \mathfrak{b} = 0 \end{cases}$$

$$\circledast \underline{K}^C = \frac{\mathbb{1} \circledast \underline{K}^C}{\mathbb{1} \in \mathbb{R} \mathbb{1} \circledast \underline{K}^C : \mathbb{1} \circledast \underline{K}^C | \mathbb{1} = 0} = \circledast \underline{K}^C \times \circledast \underline{K}^C$$

$$\begin{cases} \mathfrak{b} \in \mathbb{R} \mathbb{1} \circledast \underline{K}^C \\ \mathfrak{b} \in \mathbb{1} \circledast \underline{K}^C \sqsubseteq \mathbb{R} \circledast \underline{K}^C \end{cases} \Rightarrow \mathfrak{b} \times \mathfrak{b} = \mathfrak{b} \mathbb{1} \mathfrak{b} \Rightarrow \mathbb{1} \circledast \underline{K}^C | \mathbb{1} = 0 \Leftrightarrow \mathbb{R} \mathbb{1} \circledast \underline{K}^C \sqsubseteq \mathbb{R} \circledast \underline{K}^C \blacktriangleright \mathbb{1} \circledast \underline{K}^C \iff \mathbb{1} \circledast \underline{K}^C \sqsubseteq \mathbb{R} \circledast \underline{K}^C \sqsubseteq \mathbb{R} \mathbb{1} \circledast \underline{K}^C \sqsubseteq \underline{K}^C \blacktriangleright \mathbb{1} \circledast \underline{K}^C$$

$$\mathbb{1} \circledast \underline{K}^C = \mathbb{1} \underline{K}^C$$

$$\mathbb{R} \circledast \underline{K}^C \sqsubseteq_{\text{Car}} \mathbb{R} \mathbb{1} \circledast \underline{K}^C = \mathbb{R} \underline{K}^C \blacktriangleright \mathbb{1} \circledast \underline{K}^C = \frac{b \in \mathbb{R} \underline{K}^C}{b \times \mathbb{1} \circledast \underline{K}^C = 0} = \mathbb{1} \circledast \underline{K}^C \times \mathbb{1} \circledast \underline{K}^C = \mathbb{R} \circledast \underline{K}^C \times \circledast \underline{K}^C$$

$$\mathbb{R}_{\underline{K}^C} = \mathbb{R}_{\underline{K}^C}^{\perp} \times \mathbb{R}_{\underline{K}^C}^{\times} = \overbrace{\mathbb{R}_{\underline{K}^C}^{\perp} \times \mathbb{R}_{\underline{K}^C}^{\times}}^{\mathbb{R}_{\underline{K}^C}^{\times}} \times \mathbb{R}_{\underline{K}^C}^{\times}$$

$$\mathbb{R}_{\underline{K}^C}^{\times} = \frac{\mathbb{R}_{\underline{K}^C}^{\perp}}{\mathbf{1} \in \mathbb{R}_{\underline{K}^C}^{\perp} : \mathbb{1}_{\underline{K}^C} \neq 0} = \mathbb{R}_{\underline{K}^C}^{\times} \times \mathbb{R}_{\underline{K}^C}^{\times}$$

$$\mathbb{R}_{\underline{K}^C} = \mathbb{R}_{\underline{K}^C} \times \overbrace{\mathbb{R}_{\underline{K}^C}^{\times} \times \mathbb{R}_{\underline{K}^C}^{\times}}^{\mathbb{R}_{\underline{K}^C}^{\times}} = \overbrace{\mathbb{R}_{\underline{K}^C} \times \mathbb{R}_{\underline{K}^C}^{\times}}^{\mathbb{R}_{\underline{K}^C}^{\times}} \times \mathbb{R}_{\underline{K}^C}^{\times}$$

$$\mathbb{R}_{\underline{K}^C}^{\perp} \ni \mathbf{1} \neq 0 \Rightarrow \mathbb{R}_{\underline{K}^C}^{\perp} = \frac{\mathfrak{b} \in \mathbb{R}_{\underline{K}^C}}{\bigwedge_{\mathfrak{b} \in \mathbb{R}_{\underline{K}^C}} \mathfrak{b} \times \mathfrak{b} = \mathfrak{b} \mathbf{1}}$$

$$\mathbb{R}_{\underline{K}^C}^{\times} = \frac{\mathbb{R}_{\underline{K}^C}^{\perp}}{\mathbf{1} \in \mathbb{R}_{\underline{K}^C}^{\perp}} = \overbrace{\mathbb{R}_{\underline{K}^C}^{\times} \times \mathbb{R}_{\underline{K}^C}^{\times}}^{\mathbb{R}_{\underline{K}^C}^{\times}} \times \overbrace{\mathbb{R}_{\underline{K}^C}^{\times} \times \mathbb{R}_{\underline{K}^C}^{\times}}^{\mathbb{R}_{\underline{K}^C}^{\times}} = \frac{\mathbb{R}_{\underline{K}^C}^{\perp \perp}}{\mathbf{1} \in \mathbb{R}_{\underline{K}^C}^{\perp} : \mathbb{R}_{\underline{K}^C} \neq 0}$$

$$\mathbb{R}_{\underline{K}^C}^{\times} \cap \mathbb{R}_{\underline{K}^C}^{\perp} \stackrel{\text{cpt}}{=} \mathbb{R}_{\underline{K}^C} \cap \mathbb{R}_{\underline{K}^C}^{\perp} \rightarrow \mathbb{R}_{\underline{K}^C} \cap \mathbb{R}_{\underline{K}^C} \rightarrow \underbrace{\mathbb{R}_{\underline{K}^C} \cap \mathbb{R}_{\underline{K}^C}}_{\mathbb{R}_{\underline{K}^C}}$$

$$\mathbb{R}_{\underline{K}^C} \cap \mathbb{R}_{\underline{K}^C}^{\perp} = \mathbb{R}_{\underline{K}^C}^{\times}$$

$$\mathbb{R}_{\underline{K}^C}^{\times} = \mathbb{R}_{\underline{K}^C} \triangleleft_{\mathbf{1}} \mathbb{R}_{\underline{K}^C}$$

