

$$\begin{aligned}
 & (\forall n, k \in \mathbb{N}) (\forall R \in \mathcal{R}) \quad R^n \circ R^k = \underbrace{(R \circ \dots \circ R)}_{n \text{ de } R} \circ \underbrace{(R \circ \dots \circ R)}_{k \text{ de } R} = \\
 & = \underbrace{R \circ R \circ \dots \circ R}_{n+k \text{ de } R} = R^{n+k} = \underbrace{(R \circ \dots \circ R)}_{k \text{ de } R} \circ \underbrace{(R \circ \dots \circ R)}_{n \text{ de } R} = R^k \circ R^n \\
 & (\forall n, k \in \mathbb{N}) \quad R^{-n} \circ R^{-k} = (R^{-1})^n \circ (R^{-1})^k = (R^{-1})^{n+k} = R^{-(n+k)} = \\
 & = (R^{-1})^k \circ (R^{-1})^n = R^{-k} \circ R^{-n}
 \end{aligned}$$

Ex:

$$A = \{a, b\}, R \subseteq A^2, S \subseteq A^2$$

Δ_A - multibucklos;

$$\begin{array}{cc}
 \emptyset & \emptyset \\
 a & b
 \end{array}$$

$$R = \{(a, a)\}; \quad \begin{array}{cc} \emptyset & \emptyset \\ a & b \end{array}$$

\Downarrow *interpolador*
 $\text{ext. par. } \rightarrow R^{-1} = \checkmark R$

$$\begin{array}{cc} \emptyset & \emptyset \\ a & b \end{array} \xrightarrow{\text{interpolador}} \begin{array}{cc} \emptyset & \emptyset \\ a & b \end{array} \quad \begin{array}{cc} \emptyset & \emptyset \\ a & b \end{array} \neq \Delta_A = R^0 = R^{-1+1} = R^{-1+1}$$

$$S := \{(a, a), (a, b)\}$$

$$S: \begin{array}{cc} \emptyset & \emptyset \\ a & b \end{array} \rightarrow S^{-1}: \begin{array}{cc} \emptyset & \emptyset \\ a & b \end{array}$$

$$\frac{S \circ S^{-1}}{\neq} : \begin{array}{cc} \emptyset & \emptyset \\ a & b \end{array} = A^2 \neq \Delta_A = S^0 = S^{-1+1}$$

$$\frac{S^{-1} \circ S}{\neq} : \begin{array}{cc} \emptyset & \emptyset \\ a & b \end{array} \neq \Delta_A = S^0 = S^{-1+1}$$