Отношения и отображения

$$A = \{a_1, a_2, a_3\},$$
$$B = \{b_1, b_2, b_3\},$$
$$C = \{c_1, c_2\}$$

$$\rho \subset A \times B = \begin{array}{c|ccc} & b_1 & b_2 & b_3 \\ \hline a_1 & 0 & 1 & 0 \\ a_2 & 1 & 0 & 1 \\ a_3 & 0 & 0 & 0 \end{array}$$

$$\sigma \subset B \times C = \begin{array}{c|cc} & c_1 & c_2 \\ \hline b_1 & 1 & 0 \\ b_2 & 0 & 1 \\ b_3 & 0 & 1 \end{array}$$

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$\rho(a_1) = \{b_2\}$
$\rho(a_2) = \{b_1, b_3\}$
$\rho(a_3) = \emptyset$

$\sigma(b_1) = c_1$
$\sigma(b_2) = c_2$
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$\rho \neq \rho : A \to B$
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$$\sigma^{-1} = \{(c, b) \ : \ (b, c) \in \sigma\}$$

$$\sigma^{-1}(c_1) = b_1$$
$$\sigma^{-1}(c_2) = \{b_2, b_3\}$$

$$\rho^{-1}(b_1) = a_2$$
$$\rho^{-1}(b_2) = a_1$$
$$\rho^{-1}(b_3) = a_2$$

$$\rho^{-1} = \rho^{-1} : B \to A$$
$$\sigma^{-1} \neq \sigma^{-1} : C \to B$$

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$$\mu_{\sigma(M)}(n) = \max_{m \in \mathbb{M}}\left[\mu_M(m)\mu_\sigma(m, n)\right]$$