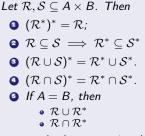
Theorem



are both symmetric relations.

Proof of 5.

Using [3] and [1], we have

$$(\mathcal{R} \cup \mathcal{R}^*)^* = \mathcal{R}^* \cup (\mathcal{R}^*)^* = \mathcal{R}^* \cup \mathcal{R} = \mathcal{R} \cup \mathcal{R}^*,$$

and similarly for the intersection.