OBVIOUS 393. Restriction of a **Rel**-morphism is **Rel**-morphism.

OBVIOUS 394. $f|_A = f \sqcap (A \times \top^{\mathscr{T} \operatorname{Dst} f})$ for every **Rel**-morphism f and $A \in \mathscr{T} \operatorname{Src} f$.

OBVIOUS 395. $\langle f \rangle^* X = \langle f \rangle^* (X \sqcap \operatorname{dom} f) = \operatorname{im}(f|_X)$ for every **Rel**-morphism f and $X \in \mathscr{T} \operatorname{Src} f$.

OBVIOUS 396. $f \sqsubseteq A \times B \Leftrightarrow \operatorname{dom} f \sqsubseteq A \wedge \operatorname{im} f \sqsubseteq B$ for every **Rel**-morphism f and $A \in \mathscr{T} \operatorname{Src} f$, $B \in \mathscr{T} \operatorname{Dst} f$.

THEOREM 397. Let A, B be sets. If $S \in \mathscr{P}(\mathscr{T} A \times \mathscr{T} B)$ then

$$\prod_{(A,B) \in S} (A \times B) = \prod \operatorname{dom} S \times \prod \operatorname{im} S.$$

PROOF. For every atomic $x \in \mathscr{T} A$, $y \in \mathscr{T} B$ we have

$$x \times y \sqsubseteq \prod_{(A,B) \in S} (A \times B) \Leftrightarrow \forall (A, B) \in S : x \times y \sqsubseteq A \times B \Leftrightarrow$$
$$\forall (A, B) \in S : (x \sqsubseteq A \wedge y \sqsubseteq B) \Leftrightarrow \forall A \in \operatorname{dom} S : x \sqsubseteq A \wedge \forall B \in \operatorname{im} S : y \sqsubseteq B \Leftrightarrow$$
$$x \sqsubseteq \prod \operatorname{dom} S \wedge y \sqsubseteq \prod \operatorname{im} S \Leftrightarrow x \times y \sqsubseteq \prod \operatorname{dom} S \times \prod \operatorname{im} S.$$

□

OBVIOUS 398. If U, W are sets and $A \in \mathscr{T}(U)$ then $A \times$ is a complete homomorphism from the lattice $\mathscr{T}(W)$ to the lattice $\mathbf{Rel}(U, W)$, if also $A \neq \bot$ then it is an order embedding.