PROOF.

$$\begin{aligned}
f \sqcap (\mathcal{A} \times^{\mathsf{RLD}} \mathcal{B}) &= \\
f \sqcap (\mathcal{A} \times^{\mathsf{RLD}} \top^{\mathfrak{F}(\operatorname{Dst} f)}) \sqcap (\top^{\mathfrak{F}(\operatorname{Src} f)} \times^{\mathsf{RLD}} \mathcal{B}) &= \\
f|_{\mathcal{A}} \sqcap (\top^{\mathfrak{F}(\operatorname{Src} f)} \times^{\mathsf{RLD}} \mathcal{B}) &= \\
(f \circ \operatorname{id}^{\mathsf{RLD}}_{\mathcal{A}}) \sqcap (\top^{\mathfrak{F}(\operatorname{Src} f)} \times^{\mathsf{RLD}} \mathcal{B}) &= \\
((f \circ \operatorname{id}^{\mathsf{RLD}}_{\mathcal{A}})^{-1} \sqcap (\top^{\mathfrak{F}(\operatorname{Src} f)} \times^{\mathsf{RLD}} \mathcal{B})^{-1})^{-1} &= \\
((\operatorname{id}^{\mathsf{RLD}}_{\mathcal{A}} \circ f^{-1}) \sqcap (\mathcal{B} \times^{\mathsf{RLD}} \top^{\mathfrak{F}(\operatorname{Src} f)}))^{-1} &= \\
(\operatorname{id}^{\mathsf{RLD}}_{\mathcal{A}} \circ f \circ \operatorname{id}^{\mathsf{RLD}}_{\mathcal{B}})^{-1} &= \\
\operatorname{id}^{\mathsf{RLD}}_{\mathcal{B}} \circ f \circ \operatorname{id}^{\mathsf{RLD}}_{\mathcal{A}}&.
\end{aligned}$$

□

THEOREM 767. $f|_{\uparrow^{\operatorname{Src} f}\{\alpha\}} = \uparrow^{\operatorname{Src} f} \{\alpha\} \times^{\mathsf{RLD}} \operatorname{im}(f|_{\uparrow^{\operatorname{Src} f}\{\alpha\}})$ for every reloid f and $\alpha \in \operatorname{Src} f$.

PROOF. First,

$$\begin{aligned}
\operatorname{im}(f|_{\uparrow^{\operatorname{Src} f}\{\alpha\}}) &= \\
\bigsqcap \langle \uparrow^{\operatorname{Dst} f} \rangle^* \langle \operatorname{im} \rangle^* \operatorname{GR}(f|_{\uparrow^{\operatorname{Src} f}\{\alpha\}}) &= \\
\bigsqcap \langle \uparrow^{\operatorname{Dst} f} \rangle^* \langle \operatorname{im} \rangle^* \operatorname{GR}(f \sqcap (\uparrow^{\operatorname{Src} f} \{\alpha\} \times \top^{\mathfrak{F}(\operatorname{Dst} f)})) &= \\
\bigsqcap \left\{ \frac{\uparrow^{\operatorname{Dst} f} \operatorname{im}(F \cap (\{\alpha\} \times \operatorname{Dst} f))}{F \in \operatorname{GR} f} \right\} &= \\
\bigsqcap \left\{ \frac{\uparrow^{\operatorname{Dst} f} \operatorname{im}(F|_{\{\alpha\}})}{F \in \operatorname{GR} f} \right\}&.
\end{aligned}$$

Taking this into account we have:

$$\begin{aligned}
\uparrow^{\operatorname{Src} f} \{\alpha\} \times^{\mathsf{RLD}} \operatorname{im}(f|_{\uparrow^{\operatorname{Src} f}\{\alpha\}}) &= \\
\bigsqcap \left\{ \frac{\uparrow^{\mathsf{RLD}(\operatorname{Src} f; \operatorname{Dst} f)} (\{\alpha\} \times K)}{K \in \operatorname{im}(f|_{\uparrow^{\operatorname{Src} f}\{\alpha\}})} \right\} &= \\
\bigsqcap \left\{ \frac{\uparrow^{\mathsf{RLD}(\operatorname{Src} f; \operatorname{Dst} f)} (\{\alpha\} \times \operatorname{im}(F|_{\{\alpha\}}))}{F \in \operatorname{GR} f} \right\} &= \\
\bigsqcap \left\{ \frac{\uparrow^{\mathsf{RLD}(\operatorname{Src} f; \operatorname{Dst} f)} (F|_{\{\alpha\}})}{F \in \operatorname{GR} f} \right\} &= \\
\bigsqcap \left\{ \frac{\uparrow^{\mathsf{RLD}(\operatorname{Src} f; \operatorname{Dst} f)} (F \cap (\{\alpha\} \times \operatorname{Dst} f))}{F \in \operatorname{GR} f} \right\} &= \\
\bigsqcap \left\{ \frac{\uparrow^{\mathsf{RLD}(\operatorname{Src} f; \operatorname{Dst} f)} F}{F \in \operatorname{GR} f} \right\} \sqcap \uparrow^{\mathsf{RLD}(\operatorname{Src} f; \operatorname{Dst} f)} (\{\alpha\} \times \operatorname{Dst} f) &= \\
f \sqcap \uparrow^{\mathsf{RLD}(\operatorname{Src} f; \operatorname{Dst} f)} (\{\alpha\} \times \operatorname{Dst} f) &= \\
f|_{\uparrow^{\operatorname{Src} f}\{\alpha\}}&.
\end{aligned}$$

□

LEMMA 768. $\lambda \mathcal{B} \in \mathfrak{F}(B) : \top^{\mathfrak{F}} \times^{\mathsf{RLD}} \mathcal{B}$ is an upper adjoint of $\lambda f \in \mathsf{RLD}(A; B) : \operatorname{im} f$ (for every sets A, B).

PROOF. We need to prove $\operatorname{im} f \sqsubseteq \mathcal{B} \Leftrightarrow \top^{\mathfrak{F}} \times^{\mathsf{RLD}} \mathcal{B}$ what is obvious. □