2°.

$$\left(\prod^{\mathsf{RLD}} \operatorname{up} g\right) \circ \left(\prod^{\mathsf{RLD}} \operatorname{up} f\right) = \prod^{\mathsf{RLD}} \left\{ \frac{G \circ F}{F \in \prod^{\mathsf{RLD}} f, G \in \prod^{\mathsf{RLD}} g} \right\} =$$

$$\prod^{\mathsf{RLD}} \left\{ \frac{G \circ F}{F \in f, G \in g} \right\} = \prod^{\mathsf{RLD}} \prod^{\mathfrak{F}\Gamma(\operatorname{Src} f, \operatorname{Dst} g)} \left\{ \frac{G \circ F}{F \in f, G \in g} \right\} = \prod^{\mathsf{RLD}} (g \circ f).$$

So $\prod^{\mathsf{RLD}}$ preserves composition. That $\mathcal{A} \mapsto \Gamma(A, B) \cap \operatorname{up} \mathcal{A}$ preserves composition follows from properties of bijections.

□

LEMMA 1391. Let A, B, C be sets.

1°. $\left(\prod^{\mathsf{FCD}} \operatorname{up} g\right) \circ \left(\prod^{\mathsf{FCD}} \operatorname{up} f\right) = \prod^{\mathsf{FCD}} \operatorname{up}(g \circ f)$ for every $f \in \mathfrak{F}\Gamma(A, B)$, $g \in \mathfrak{F}\Gamma(B, C)$;

2°. $(\operatorname{up}^{\Gamma(B,C)} g) \circ (\operatorname{up}^{\Gamma(A,B)} f) = \operatorname{up}^{\Gamma(A,B)}(g \circ f)$ for every funcoids $f \in \mathsf{FCD}(A, B)$ and $g \in \mathsf{FCD}(B : C)$.

PROOF. It's enough to prove only the first formula, because of the bijection from lemma 1384.

Really:

$$\prod^{\mathsf{FCD}} \operatorname{up}(g \circ f) = \prod^{\mathsf{FCD}} \operatorname{up} \prod^{\mathsf{RLD}} \operatorname{up}(g \circ f) =$$

$$\prod^{\mathsf{FCD}} \operatorname{up}\left(\prod^{\mathsf{RLD}} \operatorname{up} g \circ \prod^{\mathsf{RLD}} \operatorname{up} f\right) = (\mathsf{FCD})\left(\prod^{\mathsf{RLD}} \operatorname{up} g \circ \prod^{\mathsf{RLD}} \operatorname{up} f\right) =$$

$$\left((\mathsf{FCD}) \prod^{\mathsf{RLD}} \operatorname{up} g\right) \circ \left((\mathsf{FCD}) \prod^{\mathsf{RLD}} \operatorname{up} f\right) =$$

$$\left(\prod^{\mathsf{FCD}} \operatorname{up} \prod^{\mathsf{RLD}} \operatorname{up} g\right) \circ \left(\prod^{\mathsf{FCD}} \operatorname{up} \prod^{\mathsf{RLD}} \operatorname{up} f\right) =$$

$$\left(\prod^{\mathsf{FCD}} \operatorname{up} g\right) \circ \left(\prod^{\mathsf{FCD}} \operatorname{up} f\right).$$

□

COROLLARY 1392. $(h \circ g) \circ f = h \circ (g \circ f)$ for every $f \in \mathfrak{F}(\Gamma(A, B))$, $g \in \mathfrak{F}\Gamma(B, C)$, $h \in \mathfrak{F}\Gamma(C, D)$ for every sets A, B, C, D.

LEMMA 1393. $\Gamma(A, B) \cap \operatorname{GR} f$ is a filter on the lattice $\Gamma(A, B)$ for every reloid $f \in \mathsf{RLD}(A, B)$.

PROOF. That it is an upper set, is obvious. If $A, B \in \Gamma(A, B) \cap \operatorname{GR} f$ then $A, B \in \Gamma(A, B)$ and $A, B \in \operatorname{GR} f$. Thus $A \cap B \in \Gamma(A, B) \cap \operatorname{GR} f$. □

PROPOSITION 1394. If $Y \in \operatorname{up}\langle f \rangle \mathcal{X}$ for a funcoid f then there exists $A \in \operatorname{up} \mathcal{X}$ such that $Y \in \operatorname{up}\langle f \rangle A$.

PROOF. $Y \in \operatorname{up} \prod^{\mathscr{F}}_{A \in \operatorname{up} a} \langle f \rangle A$. So by properties of generalized filter bases, there exists $A \in \operatorname{up} a$ such that $Y \in \operatorname{up}\langle f \rangle A$. □

LEMMA 1395. $(\mathsf{FCD}) f = \prod^{\mathsf{FCD}} (\Gamma(A, B) \cap \operatorname{GR} f)$ for every reloid $f \in \mathsf{RLD}(A, B)$.