$b \not\asymp \operatorname{StarComp}(a; f) \Leftrightarrow \forall A \in a, B \in B, F \in \prod_{i \in n} f_i: B \not\asymp \operatorname{StarComp}(A; F) \Leftrightarrow \forall A \in a, B \in B,$ $F \in \prod_{i \in n} f_i: B \not\asymp \left\langle \prod^{(C)} F \right\rangle A \Leftrightarrow \forall A \in a, B \in B, F \in \prod_{i \in n} f_i: A \not\asymp \left\langle \left(\prod^{(C)} F \right)^{-1} \right\rangle B \Leftrightarrow$ $\forall A \in a, B \in B, F \in \prod_{i \in n} f_i: A \not\asymp \operatorname{StarComp}(B; F^{\dagger}) \Leftrightarrow a \not\asymp \operatorname{StarComp}(b; f^{\dagger})$. □

Definition 158. Let f is a multireloid of the form A. Then for $i \in \operatorname{dom} A$

$$\operatorname{Pr}_i^{\mathsf{RLD}} f = \bigsqcap \langle \uparrow^{A_i} \rangle \langle \operatorname{Pr}_i \rangle f.$$

Definition 159. $\prod^{\mathsf{RLD}} \mathcal{X} = \bigsqcap \left\{ \uparrow^{\mathsf{RLD}(\lambda i \in \operatorname{dom} \mathcal{X}: \operatorname{Base}(\mathcal{X}_i))} \prod X \mid X \in \mathcal{X} \right\}$ for every indexed family $\mathcal{X}$ of filters on powersets.

Proposition 160. $\operatorname{Pr}_k^{\mathsf{RLD}} \prod^{\mathsf{RLD}} x = x_k$ for every indexed family x of proper filters.

Proof. It follows from $\langle \operatorname{Pr}_k \rangle \left\{ \uparrow^{\mathsf{RLD}(\lambda i \in \operatorname{dom} \mathcal{X}: \operatorname{Base}(\mathcal{X}_i))} \prod X \mid X \in x \right\} = \bigsqcap \{ X \mid X \in x \} = x$. □

Conjecture 161. $\operatorname{GR} \operatorname{StarComp}(a; \lambda i \in n: f_i \sqcup g_i) = \operatorname{GR} \operatorname{StarComp}(a; f) \sqcup \operatorname{GR} \operatorname{StarComp}(a; g)$ for a multireloid a and indexed families f and g of multireloids where $\operatorname{Src} f_i = \operatorname{Src} g_i$ and $\operatorname{Dst} f_i = \operatorname{Dst} g_i$.

Conjecture 162. $\operatorname{GR} \operatorname{StarComp}(a \sqcup b; f) = \operatorname{GR} \operatorname{StarComp}(a; f) \sqcup \operatorname{GR} \operatorname{StarComp}(b; f)$ if f is a reloid and a, b are multireloids of the same form, composable with f.

Theorem 163. $\prod^{\mathsf{RLD}} A = \bigsqcup \left\{ \prod^{\mathsf{RLD}} a \mid a \in \prod_{i \in \operatorname{dom} A} \operatorname{atoms} A_i \right\}$ for every indexed family A of filters on powersets.

Proof. Obviously $\prod^{\mathsf{RLD}} A \sqsupseteq \bigsqcup \left\{ \prod^{\mathsf{RLD}} a \mid a \in \prod_{i \in \operatorname{dom} A} \operatorname{atoms} A_i \right\}$.

Reversely, let $K \in \bigsqcup \left\{ \prod^{\mathsf{RLD}} a \mid a \in \prod_{i \in \operatorname{dom} A} \operatorname{atoms} A_i \right\}$. Then for every $i \in \operatorname{dom} A$ we have $K \in \prod^{\mathsf{RLD}} a_i$ for every $a_i \in \prod_{j \in \operatorname{dom} A} \operatorname{atoms} A_j$ and so $K \sqsupseteq \prod X_i$ for some $X_i \in \prod_{j \in \operatorname{dom} A} A_j$. Consequently $K \sqsupseteq \bigsqcup_{i \in \operatorname{dom} A} \prod X_i = \bigsqcup_{i \in \operatorname{dom} A} \prod_{j \in \operatorname{dom} A} X_{i,j} = \prod_{j \in \operatorname{dom} A} \bigsqcup_{i \in \operatorname{dom} A} X_{i,j} \sqsupseteq \prod_{j \in \operatorname{dom} A} Z_j$ for some $Z_j \in A_j$. So $K \in \prod^{\mathsf{RLD}} A$. □

Theorem 164. Let a, b be indexed families of filters on powersets of the same form $\mathfrak{A}$. Then

$$\prod^{\mathsf{RLD}} a \sqcap \prod^{\mathsf{RLD}} b = \prod^{\mathsf{RLD}}_{i \in \operatorname{dom} \mathfrak{A}} (a_i \sqcap b_i).$$

Proof.

$$\begin{aligned}
\prod^{\mathsf{RLD}} a \sqcap \prod^{\mathsf{RLD}} b &= \\
\left\{ \uparrow^{\mathsf{RLD}(\mathfrak{A})} (P \cap Q) \mid P \in \prod^{\mathsf{RLD}} a, Q \in \prod^{\mathsf{RLD}} b \right\} &= \\
\left\{ \uparrow^{\mathsf{RLD}(\mathfrak{A})} \left(\prod p \cap \prod q \right) \mid p \in \prod a, q \in \prod b \right\} &= \\
\left\{ \uparrow^{\mathsf{RLD}(\mathfrak{A})} \left(\prod_{i \in \operatorname{dom} \mathfrak{A}} (p_i \cap q_i) \right) \mid p \in \prod a, q \in \prod b \right\} &= \\
\left\{ \uparrow^{\mathsf{RLD}(\mathfrak{A})} \prod r \mid r \in \prod_{i \in \operatorname{dom} \mathfrak{A}} (a_i \sqcap b_i) \right\} &= \\
\prod^{\mathsf{RLD}}_{i \in \operatorname{dom} \mathfrak{A}} (a_i \sqcap b_i).
\end{aligned}$$

□

Theorem 165. If $S \in \mathscr{P} \prod_{i \in \operatorname{dom} \mathfrak{A}} \mathfrak{F}(\mathfrak{A}_i)$ where $\mathfrak{A}$ is an indexed family of sets, then

$$\bigsqcap \left\{ \prod^{\mathsf{RLD}} a \mid a \in S \right\} = \prod^{\mathsf{RLD}}_{i \in \operatorname{dom} \mathfrak{A}} \bigsqcap \langle \uparrow^{\mathfrak{F}(\mathfrak{A}_i)} \rangle \operatorname{Pr}_i S.$$