CONJECTURE 1293. The formula $f \sqcup^{\mathsf{FCD}(\mathfrak{A})} g \in \mathsf{cFCD}(\mathfrak{A})$ is not true in general for completary multifuncoids (even for completary multifuncoids on powersets) f and g of the same form $\mathfrak{A}$.

17.8. Infinite product of poset elements

Let A_i be a family of elements of a family $\mathfrak{A}_i$ of posets. The *staroidal product* $\prod^{\mathsf{Strd}(\mathfrak{A})} A_i$ is defined by the formula (for every $L \in \prod \mathfrak{A}$)

$$\text{form} \prod^{\mathsf{Strd}(\mathfrak{A})} A = \mathfrak{A} \quad \text{and} \quad L \in \mathrm{GR} \prod^{\mathsf{Strd}(\mathfrak{A})} A \Leftrightarrow \forall i \in \operatorname{dom} \mathfrak{A} : A_i \not\asymp L_i.$$

PROPOSITION 1294. If $\mathfrak{A}_i$ are powerset algebras, staroidal product of principal filters is essentially equivalent to Cartesian product. More precisely, $\prod^{\mathsf{Strd}}_{i \in \operatorname{dom} A} \uparrow^{\mathfrak{F}} A_i = \upuparrows \uparrow^{\mathsf{Strd}} \prod A$ for an indexed family A of sets.

PROOF.

$$\begin{aligned} L \in \mathrm{GR} \upuparrows \uparrow^{\mathsf{Strd}} \prod A &\Leftrightarrow \\ \operatorname{up} L \subseteq \mathrm{GR} \uparrow^{\mathsf{Strd}} \prod A &\Leftrightarrow \\ \forall X \in \operatorname{up} L : \prod X \not\asymp \prod A &\Leftrightarrow \\ \forall X \in \operatorname{up} L, i \in \operatorname{dom} A : X_i \not\asymp A_i &\Leftrightarrow \\ \forall i \in \operatorname{dom} A : L_i \not\asymp \uparrow^{\mathfrak{F}} A_i &\Leftrightarrow \\ L \in \mathrm{GR} \prod^{\mathsf{Strd}}_{i \in \operatorname{dom} A} \uparrow^{\mathfrak{F}} A_i. \end{aligned}$$

□

COROLLARY 1295. Staroidal product of principal filters is an upgraded principal staroid.

PROPOSITION 1296. $\prod^{\mathsf{Strd}} a = \upuparrows \downdownarrows \prod^{\mathsf{Strd}} a$ if each $a_i \in \mathfrak{A}_i$ (for $i \in n$ where n is some index set) where $\mathfrak{A}_i$ is a separable poset and $(\mathfrak{A}_{i \in n}; \mathfrak{Z}_{i \in n})$ is a down aligned filtrator.