

Multireloids Relationships

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Fix an indexed family U of sets.

Definition 1. Let f be a multireloid of the form U . $\langle(\text{FCD})f\rangle_n \mathcal{X} = \prod_{F \in \text{up } f}^{\mathfrak{F}} \langle \uparrow \uparrow F \rangle_n \mathcal{X}$ for every $n \in \text{dom } U$ and indexed family $\mathcal{X} \in (\lambda i \in (\text{dom } U) \setminus \{n\}: \mathfrak{F}(U_i))$.

Theorem 2. $\mathcal{L} \in [(\text{FCD})f] \Leftrightarrow \forall F \in \text{up } f: \mathcal{L} \in [\uparrow \uparrow F]$.

Proof. $\mathcal{L}_n \not\star \langle(\text{FCD})f\rangle_n \mathcal{L}|_{(\text{dom } U) \setminus \{n\}} \Leftrightarrow \mathcal{L}_n \not\star \prod_{F \in \text{up } f}^{\mathfrak{F}} \langle \uparrow \uparrow F \rangle_n \mathcal{L}|_{(\text{dom } U) \setminus \{n\}} \Leftrightarrow \forall F \in \text{up } f: \mathcal{L}_n \not\star \langle \uparrow \uparrow F \rangle_n \mathcal{L}|_{(\text{dom } U) \setminus \{n\}} \Leftrightarrow \forall F \in \text{up } f: \mathcal{L} \in [\uparrow \uparrow F]$. \square

Corollary 3. $(\text{FCD})f$ is a multifuncoid of the form $\lambda i \in \text{dom } U: \mathfrak{F}(U_i)$.

Proof. Thus $\mathcal{L}_n \not\star \langle(\text{FCD})f\rangle_n \mathcal{L}|_{(\text{dom } U) \setminus \{n\}} \Leftrightarrow \mathcal{L}_m \not\star \langle(\text{FCD})f\rangle_m \mathcal{L}|_{(\text{dom } U) \setminus \{m\}}$.

So $(\text{FCD})f$ is a pre-multifuncoid. That it is an upper set is obvious. \square

Theorem 4. $(\text{FCD})f$ is always a completary staroid.

Proof. $\mathcal{L}_0 \sqcup \mathcal{L}_1 \in [(\text{FCD})f] \Leftrightarrow \forall F \in \text{up } f: \mathcal{L}_0 \sqcup \mathcal{L}_1 \in [\uparrow \uparrow F] \Leftrightarrow (\text{CONJECTURE 17.71})$ \square