COROLLARY 718. Every injective funcoid is metainjective.

CONJECTURE 719. Every metamonovalued funcoid is monovalued.

6.15. T_0-, T_1-, T_2-, and T_3-separable funcoids

For funcoids it can be generalized T_0-, T_1-, T_2-, and T_3- separability. Worthwhile note that T_0 and T_2 separability is defined through T_1 separability.

DEFINITION 720. Let call T_1*-separable* such endofuncoid f that for every $\alpha, \beta \in \operatorname{Ob} f$ is true

$$\alpha \neq \beta \Rightarrow \neg(\{\alpha\} \; [f]^* \; \{\beta\}).$$

PROPOSITION 721. An endofuncoid f is T_1-separable iff $\operatorname{Cor} f \sqsubseteq \mathrm{id}^{\mathsf{FCD}(\operatorname{Ob} f)}$.

PROOF.

$$\forall x, y \in \operatorname{Ob} f : (\{x\} \; [f]^* \; \{y\} \Rightarrow x = y) \Leftrightarrow \\ \forall x, y \in \operatorname{Ob} f : (\{x\} \; [\operatorname{Cor} f]^* \; \{y\} \Rightarrow x = y) \Leftrightarrow \\ \operatorname{Cor} f \sqsubseteq \mathrm{id}^{\mathsf{FCD}(\operatorname{Ob} f)}.$$

□

DEFINITION 722. Let call T_0*-separable* such funcoid $f \in \mathsf{FCD}(A; A)$ that $f \sqcap f^{-1}$ is T_1-separable.

DEFINITION 723. Let call T_2*-separable* such funcoid f that $f^{-1} \circ f$ is T_1-separable.

For symmetric transitive funcoids T_1- and T_2-separability are the same (see theorem 210).

OBVIOUS 724. A funcoid f is T_2-separable iff $\alpha \neq \beta \Rightarrow \langle f \rangle^* \{\alpha\} \not\asymp \langle f \rangle^* \{\beta\}$ for every $\alpha, \beta \in \operatorname{Src} f$.

DEFINITION 725. *Regular funcoid* is an endofuncoid f such that $\langle f \rangle \langle f^{-1} \rangle C \asymp \langle f \rangle^* \{p\} \Leftarrow p \notin C$ for every $p \in \operatorname{Ob} f$ and $C \in \mathscr{P} \operatorname{Ob} f$.

OBVIOUS 726. Funcoid f is regular iff:

1°. $\langle f \circ f^{-1} \rangle^* C \asymp \langle f \rangle^* \{p\} \Leftarrow p \notin C$;
2°. $\langle f^{-1} \circ f \circ f^{-1} \rangle^* C \asymp \uparrow^{\operatorname{Ob} f} \{p\} \Leftarrow p \notin C$;
3°. $\langle f^{-1} \circ f \circ f^{-1} \rangle^* C \sqsubseteq \uparrow^{\operatorname{Ob} f} C$;
4°. $f^{-1} \circ f \circ f^{-1} \sqsubseteq \mathrm{id}^{\mathsf{FCD}(\operatorname{Ob} f)}$.

DEFINITION 727. An endofuncoid is T_3- iff it is both T_2- and regular.

6.16. Filters closed regarding a funcoid

DEFINITION 728. Let's call *closed* regarding a funcoid $f \in \mathsf{FCD}(A; A)$ such filter $\mathcal{A} \in \mathfrak{F}(\operatorname{Src} f)$ that $\langle f \rangle \mathcal{A} \sqsubseteq \mathcal{A}$.

This is a generalization of closedness of a set regarding an unary operation.

PROPOSITION 729. If I and J are closed (regarding some funcoid f), S is a set of closed filters on $\operatorname{Src} f$, then

1°. $\mathcal{I} \sqcup \mathcal{J}$ is a closed filter;
2°. $\bigsqcap S$ is a closed filter.

PROOF. Let denote the given funcoid as f. $\langle f \rangle (\mathcal{I} \sqcup \mathcal{J}) = \langle f \rangle \mathcal{I} \sqcup \langle f \rangle \mathcal{J} \sqsubseteq \mathcal{I} \sqcup \mathcal{J}$, $\langle f \rangle \bigsqcap S \sqsubseteq \bigsqcap \langle \langle f \rangle \rangle^* S \sqsubseteq \bigsqcap S$. Consequently the filters $\mathcal{I} \sqcup \mathcal{J}$ and $\bigsqcap S$ are closed. □