consequently

$$\left\langle \bigsqcap \left\{ \frac{g(X,Y)}{X \in \mathscr{T}A, Y \in \operatorname{up}\langle f\rangle^* X} \right\} \right\rangle^* X \sqsubseteq \langle f\rangle^* X$$

that is

$$\bigsqcap \left\{ \frac{g(X,Y)}{X \in \mathscr{T}A, Y \in \operatorname{up}\langle f\rangle^* X} \right\} \sqsubseteq f$$

and finally

$$f = \bigsqcap \left\{ \frac{g(X,Y)}{X \in \mathscr{T}A, Y \in \operatorname{up}\langle f\rangle^* X} \right\}.$$

□

COROLLARY 922. Filtrators of funcoids are filtered.

THEOREM 923.

1°. g is metacomplete if g is a complete funcoid.
2°. g is co-metacomplete if g is a co-complete funcoid.

PROOF.

1°. Let R be a set of funcoids from a set A to a set B and g be a funcoid from B to some C. Then

$$\left\langle g \circ \bigsqcup R \right\rangle^* X = \\ \langle g\rangle \left\langle \bigsqcup R \right\rangle^* X = \\ \langle g\rangle \bigsqcup_{f\in R} \langle f\rangle^* X = \\ \bigsqcup_{f\in R} \langle g\rangle \langle f\rangle^* X = \\ \bigsqcup_{f\in R} \langle g \circ f\rangle^* X = \\ \left\langle \bigsqcup_{f\in R} (g \circ f) \right\rangle^* X = \\ \left\langle \bigsqcup \langle g\circ\rangle^* R \right\rangle^* X$$

for every typed set $X \in \mathscr{T}A$. So $g \circ \bigsqcup R = \bigsqcup \langle g\circ\rangle^* R$.

2°. By duality.

□

CONJECTURE 924. g is complete if g is a metacomplete funcoid.

I will denote $\mathsf{ComplFCD}$ and $\mathsf{CoComplFCD}$ the sets of small complete and co-complete funcoids correspondingly. $\mathsf{ComplFCD}(A, B)$ are complete funcoids from A to B and likewise with $\mathsf{CoComplFCD}(A, B)$.

OBVIOUS 925. $\mathsf{ComplFCD}$ and $\mathsf{CoComplFCD}$ are closed regarding composition of funcoids.

PROPOSITION 926. $\mathsf{ComplFCD}$ and $\mathsf{CoComplFCD}$ (with induced order) are complete lattices.

PROOF. It follows from theorem 919. □

THEOREM 927. Atoms of the lattice $\mathsf{ComplFCD}(A, B)$ are exactly funcoidal products of the form $\uparrow^A \{\alpha\} \times^{\mathsf{FCD}} b$ where $\alpha \in A$ and b is an ultrafilter on B.