Suppose $\uparrow\{(x,x)\} \sqsubseteq \langle f \times^{(A)} f\rangle^*(g \setminus U)$; then $g \setminus U \not\asymp \langle f^{-1} \times^{(A)} f^{-1}\rangle\{(x,x)\}$; $U \sqsubset \langle f^{-1} \times^{(A)} f^{-1}\rangle\{(x,x)\} \sqsubseteq \langle f^{-1} \times^{(A)} f^{-1}\rangle 1^{\mathsf{RLD}}$ what is impossible.

Thus there exist $x \neq y$ such that $\{(x,y)\} \sqsubseteq \operatorname{Cor}\langle f \times^{(A)} f\rangle^*(g \setminus U)$. Thus $\{(x,y)\} \sqsubseteq \langle f \times^{(A)} f\rangle^* g$.

Thus by the lemma $\{(x,y)\} \sqsubseteq 1^{\mathsf{RLD}}$ what is impossible. So $U \in \operatorname{up} g$.

We have $\operatorname{up}\langle f \times^{(A)} f\rangle^* 1^{\mathsf{RLD}} \subseteq \operatorname{up} g$; $\langle f \times^{(A)} f\rangle^* 1^{\mathsf{RLD}} \sqsupseteq g$.

Corollary 2109. Let f is a T_1-separable (the same as T_2 for symmetric transitive) compact funcoid and g is a uniform space (reflexive, symmetric, and transitive endoreloid) such that $(\mathsf{FCD})g = f$. Then $g = \langle f \times^{(A)} f\rangle^* 1^{\mathsf{RLD}}$.

An (incomplete) attempt to prove one more theorem follows:

Theorem 2110. Let μ and ν be uniform spaces, $(\mathsf{FCD})\mu$ be a compact funcoid. Then a map f is a continuous map from $(\mathsf{FCD})\mu$ to $(\mathsf{FCD})\nu$ iff f is a (uniformly) continuous map from μ to ν.

Proof. FiXme: errors in this proof.

http://math.stackexchange.com/questions/665202/bourbaki-on-the-fact-that-continuous-function-on-a-compact-is-uniformly-continuo/670956?iemail=1&noredirect=1#670956

We have $\mu = \langle(\mathsf{FCD})\mu \times (\mathsf{FCD})\mu\rangle \uparrow^{\mathsf{RLD}} 1^{\mathsf{RLD}}$

$f \in \mathrm{C}_?((\mathsf{FCD})\mu, (\mathsf{FCD})\nu)$. Then

$$f \times^{(A)} f \in \mathrm{C}_?((\mathsf{FCD})(\mu \times^{(A)} \mu), (\mathsf{FCD})(\nu \times^{(A)} \nu))$$

$(f \times^{(A)} f) \circ (\mathsf{FCD})(\mu \times^{(A)} \mu) \sqsubseteq (\mathsf{FCD})(\nu \times^{(A)} \nu) \circ (f \times^{(A)} f)$

For every $V \in \operatorname{up}(\nu \times^{(A)} \nu)$ we have $\langle g^{-1}\rangle V \in \langle(\mathsf{FCD})(\mu \times^{(A)} \mu)\rangle\{y\}$ for some y.

$\langle g^{-1}\rangle V \in \langle(\mathsf{FCD})\mu \times^{(A)} (\mathsf{FCD})\mu\rangle \uparrow^{\mathsf{RLD}} 1^{\mathsf{RLD}} = \operatorname{up}\mu$

$\langle g\rangle\langle g^{-1}\rangle V \sqsubseteq V$

We need to prove $f \in \mathrm{C}(\mu, \nu)$ that is $\forall p \in \operatorname{up}\nu \exists q \in \operatorname{up}\mu : \langle f\rangle q \sqsubseteq p$. But this follows from the above. □

FiXme: A space is compact if and only if it is both, complete and totally bounded.

http://math.stackexchange.com/questions/1101995/non-symmetric-version-of-compact-totally-bounded-complete