THE GOUPOÏDE $\mathbb{R}_f^S(\varepsilon\mathcal{L}), \mathcal{L} \in \mathbb{R}_c$

Dumitru Botnaru
State University of Tiraspol
E-mail:dumitru.botnaru@gmail.com

Abstract. In the category $\mathcal{C}_2\mathcal{V}$, let $\mathcal{L}$ be a reflective subcategory, and $\mathbb{R}_f^S(\varepsilon\mathcal{L})$ the class of reflective subcategories closed in relation to $(\varepsilon\mathcal{L})$-subobjects and $(\varepsilon\mathcal{L})$-factorobjects.

Theorem. *Let $l : \mathcal{C}_2\mathcal{V} \to \mathcal{L}$ be the reflector functor exactly to the left, $\mathcal{L}$ contains the $\mathcal{S}$ subcategory of the spaces with weak topology, and $\mathcal{R}$, $\mathcal{T} \in \mathbb{R}_f^S(\varepsilon\mathcal{L})$. Then $\lambda_{\mathcal{R}}(\mathcal{T}) \in \mathbb{R}_f^S(\varepsilon\mathcal{L})$.*

Thus, in the class $\mathbb{R}_f^S(\varepsilon\mathcal{L})$ is defined a binary operation $\mathcal{R} \circ \mathcal{T} = \lambda_{\mathcal{R}}(\mathcal{T})$ with the following properties: $\mathcal{R} \circ \mathcal{C}_2\mathcal{V} = \mathcal{R}$, $\mathcal{C}_2\mathcal{V} \circ \mathcal{R} = \mathcal{C}_2\mathcal{V}$, and the operation $\circ$ is neither commutative nor associative.