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Extending the structural homomorphism of LCC loops

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Abstract: A loop Q is said to be left conjugacy closed if the set $A = \{L_x / x \in Q\}$ is closed under conjugation. Let Q be an LCC loop, let $\mathcal{L}$ and $\mathcal{R}$ be the left and right multiplication groups of Q respectively, and let $I(Q)$ be its inner mapping group, $M(Q)$ its multiplication group. By Drápal's theorem [3, Theorem 2.8] there exists a homomorphism $\Lambda : \mathcal{L} \to I(Q)$ determined by $L_x \to R_x^{-1} L_x$. In this short note we examine different possible extensions of this Λ and the uniqueness of these extensions.

Keywords: LCC loop, multiplication group, inner mapping group, homomorphism
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