The lattice Lipschitz inequality on $\mathcal{C}(K)$

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Given a compact topological space K, we present the class of lattice Lipschitz (non-linear) operators from a subset of $\mathcal{C}(K)$ to $\mathcal{C}(K)$. These operators satisfy a lattice inequality on which the Lipschitz constants becomes a continuous function on K. They provide a natural Lipschitz generalization of the linear notions of diagonal operator and multiplication operators on Banach function lattices. We establish a McShane extension type theorem, that allow to extend those operators from a set of continuous functions to the entire $\mathcal{C}(K)$ space.