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PARTIAL ANSWERS TO SOME QUESTIONS ON MAPS TO ORDERED TOPOLOGICAL VECTOR SPACES

ER-GUANG YANG

Abstract. In this paper, we give partial answers to some questions posed by Kaori Yamazaki (*Monotone countable paracompactness and maps to ordered topological vector spaces*, Topology Appl. **169** (2014), 51–70).

1. Introduction and Preliminaries

A space always means a T_1 topological space and a function always means a real-valued function. The set of all positive integers is denoted by $\mathbb{N}$. A vector space always means a real vector space. The origin of a vector space is denoted by $\mathbf{0}$ For a space X and $A \subset X$, we use $intA$ and $\overline{A}$ to denote the interior and the closure of A in X, respectively. Also, we use χ_A to denote the characteristic function of A.

A vector space Y equipped with a partial order $\leq$ is called an *ordered vector space* if $\leq$ is compatible with its linear structure. A topological vector space Y is called an *ordered topological vector space* if Y is an ordered vector space and the positive cone $Y^+ = \{y \in Y : y \geq 0\}$ is closed in Y.

Let Y be an ordered topological vector space and $e \in Y^+$. Then e is called an *interior point* of Y^+ if $e \in int_Y(Y^+)$. If e is an interior point of Y^+ and $e > 0$, then e is called a *positive interior point*. e is called an *order unit* if for each $y \in Y$, there exists $\lambda > 0$ such that $y \leq \lambda e$. It is

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