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L-NORMALITY

by

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Abstract. A topological space X is called *L-normal* if there exist a normal space Y and a bijective function $f : X \longrightarrow Y$ such that the restriction $f_{|A} : A \longrightarrow f(A)$ is a homeomorphism for each Lindelöf subspace $A \subseteq X$. We will investigate this property and produce some examples to illustrate the relation between L-normality and other weaker kinds of normality.

A. V. Arhangel'skiĭ introduced in 2012, when he was visiting the Department of Mathematics at King Abdulaziz University, a new, weaker version of normality, called C-normality [8]. A topological space X is called *C-normal* if there exist a normal space Y and a bijective function $f : X \longrightarrow Y$ such that the restriction $f_{|C} : C \longrightarrow f(C)$ is a homeomorphism for each compact subspace $C \subseteq X$. We use the idea of this definition to introduce another new, weaker version of normality and call it *L-normality.* The purpose of this paper is to investigate this property. We prove that normality implies L-normality but the converse is not true in general. We present some examples to show relationships between L-normality and other weaker versions of normality such as C-normality, almost normality, mild normality, quasi-normality, and π-normality. Throughout this paper, we denote an ordered pair by $\langle x, y \rangle$, the set of positive integers by $\mathbb{N}$, and the set of real numbers by $\mathbb{R}$. A T_4 space is a T_1 normal space, a Tychonoff space is a T_1 completely regular space, and a T_3 space is a T_1 regular space. We do not assume T_2 in the definition of compactness and we do not assume regularity in the definition of Lindelöfness. For a subset A of a space X, int$A$ and $\overline{A}$ denote the interior and the closure of A, respectively. An ordinal γ is the set of

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