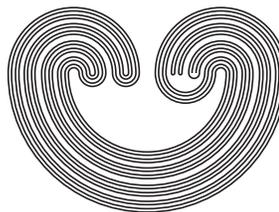


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# TOPOLOGY PROCEEDINGS



Volume 50, 2017

Pages 141–149

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## *L*-NORMALITY

by

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Electronically published on September 30, 2016

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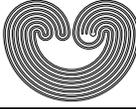
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**ISSN:** (Online) 2331-1290, (Print) 0146-4124

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## *L*-NORMALITY

LUTFI KALANTAN AND MAHA MOHAMMED SAEED

**ABSTRACT.** A topological space  $X$  is called *L-normal* if there exist a normal space  $Y$  and a bijective function  $f : X \rightarrow Y$  such that the restriction  $f|_A : A \rightarrow f(A)$  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'skii 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  $f : X \rightarrow Y$  such that the restriction  $f|_C : C \rightarrow f(C)$  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  $\pi$ -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  $X$ ,  $\text{int}A$  and  $\bar{A}$  denote the interior and the closure of  $A$ , respectively. An ordinal  $\gamma$  is the set of

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2010 *Mathematics Subject Classification.* Primary 54D15; Secondary 54C10.

*Key words and phrases.* almost normal, *C-normal*, *L-normal*, mildly normal, normal,  $\pi$ -normal, quasi-normal;

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