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ON CONNECTED SPACES VIA GENERALIZED CLOSED SETS

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Abstract. In this paper, we use g-closure operator to define g-connected as a property which is weaker than τ^*-connectedness and stronger than τ-connectedness. We give some results regarding the union of g-connected. Also, we introduce and investigate the cut-point of g-connected.

1. Introduction

Let (X, τ) be a topological space with no separation axioms assumed. If $A \subseteq X$, $Cl(A)$ and $Int(A)$ will denote the closure and interior of A in (X, τ), respectively. The concept of generalized closed sets of a topological space (briefly g-closed) was introduced by Levine [11] in 1970. These sets were also considered by Dunham [10] in 1982 and by Dunham and Levine [8] in 1980. Recently papers [7, 12] have introduced some property of connected structure spaces. Throughout this paper (X, τ) (simply X) always means a topological space. A subset B of a topological space X is called g-closed in X [11] if $Cl(B) \subseteq G$ whenever $B \subseteq G$ and G is open in X. Hence the union of two g-closed sets is a g-closed set and the intersection of two g-closed sets is generally not a g-closed set. In a T_1-space g-closed sets are closed [10]. For each $x \in X$, either $\{x\}$ is closed or $X \setminus \{x\}$ is g-closed. A subset A is called g-open in X if its complement $X \setminus A$ or $X - A$ is g-closed, equivalently if $F \subseteq Int(A)$ whenever F is closed and $F \subseteq A$. The intersection of all g-closed sets containing a set A is called the g-closure of A [10] and is denoted by $Cl_g(A)$. This is, for any $A \subseteq X$, $Cl_g(A) = \cap\{F : A \subseteq F$ and F is g-closed in $X\}$. The collection of all g-closed (resp. g-open) subsets of X will be denoted by $GC(X)$ (resp. $GO(X)$). We set $GC(X, x) = \{V \in GC(X) : x \in V\}$ for

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