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EXPLORING SEPARATION AXIOMS IN BINARY MULTISET

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Abstract: In this paper, the concept of separation axioms in binary multiset topological spaces is explored. The separation axioms are introduced and some of their properties are investigated. Furthermore, the properties of being T_0, T_1, T_2, T_3, T_4, T_5, and $T_{2\frac{1}{2}}$ spaces are proved to be hereditary.

Keywords and Phrases: bms T_0-space, bms T_1-space, bms T_2-space, bms T_3-space, bms T_4-space, bms T_5-space.

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1. Introduction

The field of topology serves as a cornerstone of modern mathematical analysis, providing insights into the properties and relationships of space that are preserved under continuous transformations. A central theme within this discipline is the study of separation axioms, which delineate the conditions under which distinct points and sets can be distinguished from one another within a topological space. Separation axioms, traditionally represented as T_0, T_1, T_2, T_3, and T_4 form a critical framework for understanding the topology of various spaces. These axioms not only facilitate a classification of spaces but also underpin many fundamental theorems and concepts in topology. Recent contributions by researchers such as Tong [13], who analyzed the relationships between T_0 and T_1 spaces. The basic properties of the multiset can be found in Girish [5], who explored multisets in relation to topological properties, have enriched this discourse. Additionally, Hoque, et.al.,