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THE CANTOR SET AS AN INVERSE LIMIT OF UPPER SEMICONTINUOUS FUNCTIONS THAT ARE THE UNION OF MAPPINGS

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Abstract. In this paper, we study the generalized inverse limit with a single upper semi-continuous function F such that it is the union of mappings from a continuum X into itself. Using the concept of $Dom(F)$, we show that if X has the fixed point property or X is an absolute neighbourhood retract (ANR) space and $Dom(F)$ is a non-degenerate finite set, the generalized inverse limit is homeomorphic to the Cantor set.

1. Introduction

W. T. Ingram [5] gives conditions over the bonding functions that are the union of mappings such that the generalized inverse limit can be a continuum. Sina Greenwood, Judy Kennedy, and Michael Lockyer [4] show that a generalized inverse limit with a single upper semi-continuous function which is the union of two mappings without coincidence points has $2^{\aleph_0}$ many components.

In [1], it is shown that if the single upper semi-continuous bonding function F is the union of contractive functions without coincidence points, the generalized inverse limit is homeomorphic to the Cantor set. Here, we suppose that the generalized inverse limit is obtained with a single upper semi-continuous function F such that it is the union of mappings from a continuum X into itself. The main goal of this paper is to show that if X

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