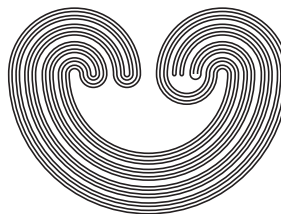


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## RELATIVIZED URYSOHN SPACES

by

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## RELATIVIZED URYSOHN SPACES

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**ABSTRACT.** In this paper, we introduce relative formulations of the Urysohn separation axiom. We prove some versions of classical results regarding Urysohn spaces that are formulated in terms of the relative concepts of the Urysohn axiom, and some lead to results in the absolute notion. We discuss the classical relation between distinct separation axioms. Finally, we obtain cardinal inequalities which boil down to results in the absolute case of a Urysohn space.

### 1. INTRODUCTION

The main idea concerning localization or relativization in topology is the following:

To each topological property  $\mathcal{P}$  of a space  $X$ , one can associate a relative formulation of it in terms of the localization of a subset  $Y \subset X$  in such a natural way that when  $Y = X$ , this relative formulation coincides with  $\mathcal{P}$ . Consider, for instance, the property  $\mathcal{P} =$  compactness and formulate the following:  $Y \subset X$  is compact in  $X$  if every open cover of  $X$  has a finite subcollection which covers  $Y$ . In this case, it is clear that if  $Y = X$ , then this defined property coincides with compactness.

There are several situations involving relative topological properties. For example, important results regarding relative countable compactness are obtained by A. Grothendieck [7]. The first systematic approach on relative topological properties is studied in 1989 by A. V. Arhangel'skii and H. M. M. Genedi [2]. Furthermore, in 1996, Arhangel'skii [1] notes

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