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Nearness in review

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Abstract

Nearness space is introduced by Horst Herrlich in 1974 . Its corresponding category is denoted by NEAR which has some important subcategories.
In this paper we have some new results regarding to subcategory T-Near of NEAR, whose objects are topological near spaces and subcategory CompNEAR of NEAR, whose objects are complete near spaces.

Keywords: Uniform space, Nearness space,Topological N-space, Complete N-space.

AMS Classification Code: 18B30, 54E17, 54E50.

1 Introduction

Nearness space is introduced by H. Herrlich as an axiomatization of the concept of nearness of arbitrary collection of sets. Nearness unifies various concepts of topological structures in the sense that the category **NEAR** of all nearness spaces and nearness preserving maps contains the categories $\mathbf{R}_0$**-TOP** of all symmetric topological spaces and continuous maps, **Unif** of all uniform spaces and uniformly continous maps, **EF-Prox** of all EF-proximity spaces and δ-maps and **Cont** of all contiguity spaces and contiguity maps as nicely embedded (either bireflective or bicoreflective) full subcategories.

In this paper we have some new results on objects of the category **T-Near** of all topological near spaces and nearness preserving maps which is isomorphic to $\mathbf{R}_0$**-TOP** and