Funcoids and Reloids: a Generalization of Proximities and Uniformities*

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Abstract

It is a part of my Algebraic General Topology research.

In this article, I introduce the concepts of **funcoids**, which generalize proximity spaces and **reloids**, which generalize uniform spaces. The concept of a funcoid is a generalized concept of proximity, the concept of a reloid is the concept of uniformity cleared (generalized) from superfluous details. Also funcoids generalize pretopologies and preclosures. Also funcoids and reloids are generalizations of binary relations whose domains and ranges are filters (instead of sets).

Also funcoids and reloids can be considered as a generalization of (directed) graphs, this provides us a common generalization of analysis and discrete mathematics.

The concept of continuity is defined by an algebraic formula (instead of the old messy epsilon-delta notation) for arbitrary morphisms (including funcoids and reloids) of a partially ordered category. In one formula continuity, proximity continuity, and uniform continuity are generalized.

Contents

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