

# Convergence of funcoids\*

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## Abstract

Considered convergence and limit for funcoids (a generalization of proximity spaces).

I also have defined (generalized) limit for arbitrary (not necessarily continuous) functions under certain conditions.

This article is a part of my Algebraic General Topology research.

**Keywords:** limit, convergence, discontinuous analysis, nonsmooth analysis, non smooth analysis

**A.M.S. subject classification:** 54A20, 54E05, 32A70, 46F30, 49J52

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## 1 Draft status

This is a partial draft.

## 2 Common

See [2] for the definition of funcoid.

## 3 Convergence

[TODO: Specify sources and destinations of the considered funcoids and reloids.]

**Definition 1.** A filter object  $\mathcal{F}$  converges to a filter object  $\mathcal{A}$  regarding a funcoid  $\mu$  ( $\mathcal{F} \xrightarrow{\mu} \mathcal{A}$ ) iff  $\mathcal{F} \subseteq \langle \mu \rangle \mathcal{A}$ .<sup>1</sup>

**Definition 2.** A funcoid  $f$  converges to a filter object  $\mathcal{A}$  regarding a funcoid  $\mu$  ( $f \xrightarrow{\mu} \mathcal{A}$ ) iff  $\text{im } f \subseteq \langle \mu \rangle \mathcal{A}$  that is iff  $\text{im } f \xrightarrow{\mu} \mathcal{A}$ .

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\*. This document has been written using the GNU  $\text{T}_{\text{E}}\text{X}_{\text{M}}\text{A}^{\text{C}}\text{S}$  text editor (see [www.texmacs.org](http://www.texmacs.org)).

1. This generalizes the standard definition of filter convergent to a point or to a set.