

Upgrading a Multifuncoïd*

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Abstract

I define the concepts of **multifuncoïd** (and **complementary multifuncoïd**) and **upgrading**. Then I conjecture that upgrading of certain multifuncoïds are multifuncoïds (and that upgrading certain complementary multifuncoïds are complementary multifuncoïds). I have proved the conjectures for $n \leq 2$.

The main conjecture from this article is now proved in the article “Multidimensional Funcoïds“

This short article is the first my public writing where I introduce the concept of **multidimensional funcoïd** which I am investigating now.

Refer to this Web site for the theory which I now attempt to generalize.

1 Background

1.1 About some posets

Let \mathfrak{A} is a poset that is a set partially ordered by a relation \geq .

If \mathfrak{A} is a join-semilattice, I will denote $a \sqcup b$ join of its elements. (Dually for a meet-semilattice I will denote $a \sqcap b$ meet of its elements.)

If $\mathfrak{A} = \mathfrak{A}_{i \in n}$ is a family of posets, then I will denote $\prod \mathfrak{A}$ the product order on \mathfrak{A} that is we have for every $a, b \in \prod \mathfrak{A}$

$$a \geq b \Leftrightarrow \forall i \in n : a_i \geq b_i.$$

Note that if every \mathfrak{A}_i is a join-semilattice then $\prod \mathfrak{A}$ is also a join-semilattice and

$$a \sqcup b = \lambda i \in n : a_i \sqcup b_i.$$

I will denote $\mathfrak{A}^n = \prod_{i \in n} \mathfrak{A}$ for every poset \mathfrak{A} and an index set n .

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