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Filtrator

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Defines	primary filtrator

A *filtrator* is a pair $(\mathfrak{A}; \mathfrak{Z})$ consisting of a poset \mathfrak{A} (the *base* of the filtrator) and its subset \mathfrak{Z} (the *core* of the filtrator). The set \mathfrak{Z} is considered as a poset with the induced order.

Having fixed a filtrator and an $a \in \mathfrak{A}$, we define:

$$\text{up } a = \{X \in \mathfrak{Z} | X \geq a\} \quad \text{down } a = \{X \in \mathfrak{Z} | X \leq a\}.$$

Probably the most important example of a filtrator is a *primary filtrator* that is the pair $(\mathfrak{F}; \mathfrak{P})$ where \mathfrak{F} is the set of filters on a poset ordered reverse to set-theoretic inclusion of filters and \mathfrak{P} is the set of principal filters on this poset. For a filter $\mathcal{F} \in \mathfrak{F}$ we have $\text{up } \mathcal{F}$ essentially equivalent with the set \mathcal{F} .

References

- [1] Victor Porton. <http://www.mathematics21.org/binaries/filters.pdf> Filters on posets and generalizations. International Journal of Pure and Applied Mathematics, 74(1):55–119, 2012.