Definition 70 *The* ***edge part*** *of an element* $a \in \mathfrak{A}$ *is* $\operatorname{Edg} a = a \setminus \operatorname{Cor} a$*, the* ***dual edge part*** *is* $\operatorname{Edg}' a = a \setminus \operatorname{Cor}' a$.

Proposition 33 *For a primary filtrator over a complete boolean lattice both edge part and dual edge part are always defined.*

Proof Using the theorem 39. □

Knowing core part and edge part or dual core part and dual edge part of a filter object, the filter object can be restored by the formulas:
$a = \operatorname{Cor} a \cup^{\mathfrak{A}} \operatorname{Edg} a$ and $a = \operatorname{Cor}' a \cup^{\mathfrak{A}} \operatorname{Edg}' a$.

13.1. Core part and atomic elements

Proposition 34 *Let* $(\mathfrak{A}; \mathfrak{Z})$ *be a filtrator with join-closed core and* $\mathfrak{Z}$ *is an atomistic lattice. Then for every* $a \in \mathfrak{A}$ *such that* $\operatorname{Cor}' a$ *exists we have*

$$\operatorname{Cor}' a = \bigcup{}^{\mathfrak{Z}} \{ x \mid x \textit{ is an atom of } \mathfrak{Z}, x \subseteq a \}.$$

Proof

$$\begin{aligned}
\operatorname{Cor}' a &= \\
\bigcup{}^{\mathfrak{Z}} \{ A \in \mathfrak{Z} \mid A \subseteq a \} &= \\
\bigcup{}^{\mathfrak{Z}} \left\{ \bigcup{}^{\mathfrak{Z}} \operatorname{atoms}^{\mathfrak{Z}} A \mid A \in \mathfrak{Z}, A \subseteq a \right\} &= \\
\bigcup{}^{\mathfrak{Z}} \bigcup \{ \operatorname{atoms}^{\mathfrak{Z}} A \mid A \in \mathfrak{Z}, A \subseteq a \} &= \\
\bigcup{}^{\mathfrak{Z}} \{ x \mid x \text{ is an atom of } \mathfrak{Z}, x \subseteq a \}.
\end{aligned}$$

□

14. Distributivity of core part over lattice operations

Theorem 64 *If* $(\mathfrak{A}; \mathfrak{Z})$ *is a join-closed filtrator and* $\mathfrak{A}$ *is a meet-semilattice and* $\mathfrak{Z}$ *is a complete lattice, then*

$$\operatorname{Cor}'(a \cap^{\mathfrak{A}} b) = \operatorname{Cor}' a \cap^{\mathfrak{Z}} \operatorname{Cor}' b.$$

Proof From theorem conditions follows that $\operatorname{Cor}'(a \cap^{\mathfrak{A}} b)$ exists.

We have $\operatorname{Cor}' p \subseteq p$ for every $p \in \mathfrak{A}$ because our filtrator is with join-closed core.

Obviously $\operatorname{Cor}'(a \cap^{\mathfrak{A}} b) \subseteq \operatorname{Cor}' a$ and $\operatorname{Cor}'(a \cap^{\mathfrak{A}} b) \subseteq \operatorname{Cor}' b$.

If $x \subseteq \operatorname{Cor}' a$ and $x \subseteq \operatorname{Cor}' b$ for some $x \in \mathfrak{Z}$ then $x \subseteq a$ and $x \subseteq b$, thus $x \subseteq a \cap^{\mathfrak{A}} b$ and $x \subseteq \operatorname{Cor}'(a \cap^{\mathfrak{A}} b)$. □