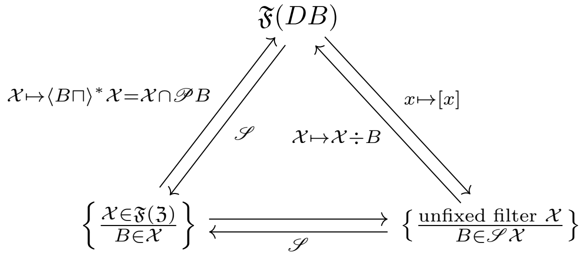
FIGURE 5.



5.39.6. The lattice of unfixed filters.

THEOREM 736. Every nonempty set of unfixed filters has an infimum, provided that the lattice $\mathfrak{Z}$ is distributive.

PROOF. Theorem 517. □

THEOREM 737. Every bounded above set of unfixed filters has a supremum.

PROOF. Theorem 512 for nonempty sets of unfixed filters. The join $\bigsqcup\emptyset = [\bot]$ for the least filter $\bot\in\mathfrak{Z}(DA)$ for arbitrary $A\in\mathfrak{Z}$. □

COROLLARY 738. If $\mathfrak{Z}$ is the set of small sets, then every small set of unfixed filters has a supremum.

PROOF. Let S be a set of filters on $\mathfrak{Z}$. Then $T_{\mathcal{X}}\in\mathcal{X}$ is a small set for every $\mathcal{X}\in S$. Thus $\left\{\frac{T_{\mathcal{X}}}{\mathcal{X}\in S}\right\}$ is small set and thus $T=\bigcup\left\{\frac{T_{\mathcal{X}}}{\mathcal{X}\in S}\right\}$ is small set. Take the filter $\mathcal{T}=\uparrow T$. Then $\mathcal{T}$ is an upper bound of S and we can apply the theorem. □

OBVIOUS 739. The poset of unfixed filters for the lattice of small sets is bounded below (but not above).

PROPOSITION 740. The set of unfixed filters forms a co-brouwerian (and thus distributive) lattice, provided that $\mathfrak{Z}$ is distributive lattice which is an ideal base.

PROOF. Corollary 528. □

5.39.7. Principal unfixed filters and filtrator of unfixed filters.

DEFINITION 741. *Principal* unfixed filter is an unfixed filter corresponding to a principal filter on the poset $\mathfrak{Z}$.

DEFINITION 742. The *filtrator of unfixed filters* is the filtrator whose base are unfixed filters and whose core are principal unfixed filters.

We will equate principal unfixed filters with corresponding sets.

THEOREM 743. If we add principal filters on DB, principal filters on $\mathfrak{Z}$ containing B, and above defined principal unfixed filters corresponding to them to appropriate nodes of the diagram 5, then the diagram turns into a commutative diagram of isomorphisms between filtrators. (I will not draw the modified diagram for brevity.)

Every arrow of this diagram is an isomorphism between filtrators, every cycle in the diagram is identity.

PROOF. We need to prove only that principal filters on B and principal filters on $\mathfrak{Z}$ containing B correspond to each other by the isomorphisms of the diagram. But that's obvious. □

OBVIOUS 744. The filtrator of unfixed filters is a primary filtrator.