Proposition 5 *For a distributive lattice* $(a \setminus b) \setminus c = a \setminus (b \cup c)$ *if* $a \setminus b$ *and* $(a \setminus b) \setminus c$ *are defined.*

Proof $((a \setminus b) \setminus c) \cap c = 0$; $((a \setminus b) \setminus c) \cup c = (a \setminus b) \cup c$; $(a \setminus b) \cap b = 0$; $(a \setminus b) \cup b = a \cup b$.

We need to prove $((a \setminus b) \setminus c) \cap (b \cup c) = 0$ and $((a \setminus b) \setminus c) \cup (b \cup c) = a \cup (b \cup c)$.

In fact,

$$\begin{aligned} ((a \setminus b) \setminus c) \cap (b \cup c) &= \\ (((a \setminus b) \setminus c) \cap b) \cup (((a \setminus b) \setminus c) \cap c) &= \\ (((a \setminus b) \setminus c) \cap b) \cup 0 &= \\ ((a \setminus b) \setminus c) \cap b &\subseteq \\ (a \setminus b) \cap b &= 0, \end{aligned}$$

so $((a \setminus b) \setminus c) \cap (b \cup c) = 0$;

$$\begin{aligned} ((a \setminus b) \setminus c) \cup (b \cup c) &= \\ (((a \setminus b) \setminus c) \cup c) \cup b &= \\ (a \setminus b) \cup c \cup b &= \\ ((a \setminus b) \cup b) \cup c &= \\ a \cup b \cup c. & \end{aligned}$$

□

2.4. Center of a lattice

Definition 13 *The* ***center*** $Z(\mathfrak{A})$ *of a bounded distributive lattice* $\mathfrak{A}$ *is the set of its complemented elements.*

Remark 2 For definition of center of non-distributive lattices see [3].

Remark 3 In [9] the word center and the notation $Z(\mathfrak{A})$ is used in a different sense.

Definition 14 *A complete lattice* $\mathfrak{A}$ *is* ***join infinite distributive*** *when* $x \cap \bigcup S = \bigcup \langle x\cap \rangle S$*; complete lattice is* ***meet infinite distributive*** *when* $x \cup \bigcap S = \bigcap \langle x\cup \rangle S$ *for all* $x \in \mathfrak{A}$ *and* $S \in \mathcal{P}\mathfrak{A}$.

Definition 15 ***Infinitely distributive complete lattice*** *is a complete lattice which is both join infinite distributive and meet infinite distributive.*

Definition 16 *A sublattice* K *of a complete lattice* L *is a closed sublattice of* L *if* K *contains the meet and the join of any its nonempty subset.*

Theorem 5 *Center of a infinitely distributive lattice is its closed sublattice.*