On Relatively Pseudocomplemented Posets and Implicative Algebras

Dumitru Busneag

Let $(A, \leq)$ be a poset and $a, b \in A$. The relative pseudocomplement of a with respect to b, denoted by $a \to b$, is an element of A such that for every $x \in A$, the following equivalence holds:

$$(\forall z(z \leq a \& z \leq x \Rightarrow z \leq b) \Leftrightarrow x \leq a \to b \tag{1}$$

(in the case of a meet semilattice it reduces to the usual definition $a \vee x \leq b \Leftrightarrow x \leq a \to b$). If $a \to b$ exists for every $a, b \in A$ we say that A is a relatively pseudocomplemented poset.

The scope of my contributed paper is to outline the connections between the relatively pseudocomplemented posets and implicative algebras with the origin in mathematical logic (Hilbert algebras, Hertz algebras, Implicational algebras, etc.).

[1] Abbot, J.C., Implicational algebras, Bull. Math. Soc. Sci. Math. de la Roumanie, 11, (59), 1967, pp. 3-23.

[2] Busneag, D., Contributions to the study of Hilbert algebras, PhD Thesis, Univ. of Bucharest, 1985.

[3] Rudeanu, S., On relatively pseudocomplemented posets and Hilbert algebras Analele Stiintifice ale Univ., "A.I. Cuza", Iasi, XXXI, s.Ia, 1985, pp.74-78.

Address: Univ. of Craiova, Dept. of Math., A.I. Cuza St., 13, RO-1100, Craiova, Romania
E-mail: busneag@udjmath1.sfos.ro