Discussiones Mathematicae
General Algebra and Applications 40 (2020) 5–6
doi:10.7151/dmgaa.1324

ON QUASI-P-ALMOST DISTRIBUTIVE LATTICES

Ravi Kumar Bandaru[1]

Department of Mathematics
GITAM (Deemed to be University)
Hyderabad Campus, Telangana, India-502 329

e-mail: ravimaths83@gmail.com

AND

G.C. Rao

Department of Mathematics
Andhra University
Andhra Pradesh, India-530 003

e-mail: gcraomaths@yahoo.co.in

Abstract

In this paper, the concept of quasi pseudo-complementation on an Almost Distributive Lattice (ADL) as a generalization of pseudo-complementation on an ADL is introduced and its properties are studied. Necessary and sufficient conditions for a quasi pseudo-complemented ADL(q-p-ADL) to be a pseudo-complemented ADL(p-ADL) and Stone ADL are derived and the set $S(L) = \{a^* \mid a \in L\}$ is proved to be a Boolean algebra. Also, the notions of $*-$congruence and kernel ideals are introduced in a quasi-p-ADL and characterized kernel ideals. Finally, some equivalent conditions are given for every ideal of a quasi-p-ADL to be a kernel ideal.

Keywords: pseudo-complementation, quasi pseudo-complementation, Almost Distributive Lattice (ADL), p-ADL, quasi-p-ADL.

2010 Mathematics Subject Classification: 06D99, 06D15.

References

[1] W.H. Cornish, *Congruences on distributive pseudo-complemented lattices*, Bull. Aust. Math. Soc. **8** (1973) 161–179. doi:10.1017/S0004972700042404

[1] Corresponding author.

[2] T.S. Blyth, *Ideals and filters of Pseudo-complemented semilattices*, Proc. Edinburgh Math. Soc. **23** (1980) 301–316.
doi:10.1017/S0013091500003850

[3] O. Frink, *Pseudo-complements in semilattices*, Duke Math. J. **29** (1962) 505–514.
doi:10.1215/S0012-7094-62-02951-4

[4] G. Gratzer, General Lattice Theory (Academic Press, New York, 1978).

[5] K.B. Lee, *Equational class of distributive pseudo-complemented lattices*, Canad. J. Math. **22** (1970) 881–891.
doi:10.4153/CJM-1970-101-4

[6] G.C. Rao and S. Ravikumar, *Minimal prime ideals in almost distributive lattices*, Int. J. Contemp. Math. Sci. **4** (10) (2009) 475–484.
http://m-hikari.com/ijcms-password2009/9-12-2009/raoIJCMS9-12-2009-3.pdf

[7] M.S. Rao, *Kernel ideals in Almost Distributive Lattices*, Asian-European J. Math. **5** (2) (2012), 1250024(11 pages).
doi:10.1142/S1793557112500246

[8] H.P. Sankappanavar, *Semi-de Morgan algebras*, J. Symbolic Logic **52** (3) (1987) 712–724.
doi:10.2307/2274359

[9] U.M. Swamy, G.C. Rao and G. Nanaji Rao, *Pseudo-complementation on Almost Distributive Lattices*, South. Asian Bull. Math. **24** (2000) 95–104.
doi:10.1007/s10012-000-0095-5

[10] U.M. Swamy, G.C. Rao and G. Nanaji Rao, *Stone Almost Distributive Lattices*, South. Asian Bull. Math. **27** (3) (2003) 115–119.
http://www.seams-bull-math.ynu.edu.cn/archive.jsp

[11] U.M. Swamy and G.C. Rao, *Almost Distributive Lattices*, J. Australian. Math. Soc. Ser. A **31** (1981) 77–91.
doi:10.1017/S1446788700018498

Received 10 September 2018
Revised 3 September 2019
Accepted 12 January 2020