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Congruence distributive Quasivarieties of MV-algebras

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ABSTRACT

We give a complete characterization and classification of all congruence distributive quasivarieties of MV-algebras.

Theorem:
Let **K** be a quasivariety of MV-algebras. The following properties are equivalent:

1. **K** is congruence distributive
2. **K** is generated by a family of MV-chains
3. There exist $\alpha, \gamma, \kappa \subset \omega$ and for every $i \in \gamma$, $\gamma(i) \subset \{j : j|i\}$ such that

$$\mathbf{K} = Q(\{\mathrm{L}_n : n \in \alpha\} \cup \{\Gamma(Z \vec{\times} Z, (i, d_i)) : i \in \gamma,\ d_i \in \gamma(i)\} \cup \{\Gamma(S, k) : k \in \kappa\})$$

where Z is the totally ordered group of the integers and S is a finitely generated dense subgroup of the totally ordered group of the reals.

Moreover, since the class of MV-algebras is the algebraic counterpart of the Infinitevalued Lukasiewicz Logic, using to the theory of algebraizable logics of Blok and Pigozzi we translate our algebraic results to logic results.

Reference:

Blok, Pigozzi : Algebraizable Logics. **Memoirs of the American Mathematical Society 396 vol. 77** Amer. Math. Soc., Providence 1989

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