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FROM $\vee e$-SEMIGROUPS TO HYPERSEMIGROUPS

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Abstract

A *poe*-semigroup is a semigroup S at the same time an ordered set having a greatest element "e" in which the multiplication is compatible with the ordering. A $\vee e$-semigroup is a semigroup S at the same time an upper semilattice with a greatest element "e" such that $a(b \vee c) = ab \vee ac$ and $(a \vee b)c = ac \vee bc$ for every $a, b, c \in S$. If S is not only an upper semilattice but a lattice, then it is called le-semigroup. From many results on le-semigroups, $\vee e$-semigroups or *poe*-semigroups, corresponding results on ordered semigroups (without greatest element) can be obtained. Related results on hypersemigroups or ordered hypersemigroups follow as application. An example is presented in the present note; the same can be said for every result on these structures. So order-lattices play an essential role in studying the hypersemigroups and the ordered hypersemigroups.

Keywords: $\vee e$-semigroup, hypersemigroup, (m, n)-ideal (element), regular, left regular, completely regular.

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