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FOUR-PART SEMIGROUPS - SEMIGROUPS OF BOOLEAN OPERATIONS

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Abstract

Four-part semigroups form a new class of semigroups which became important when sets of Boolean operations which are closed under the binary superposition operation $f + g := f(g, \ldots, g)$, were studied. In this paper we describe the lattice of all subsemigroups of an arbitrary four-part semigroup, determine regular and idempotent elements, regular and idempotent subsemigroups, homomorphic images, Green's relations, and prove a representation theorem for four-part semigroups.

Keywords: four-part semigroup, Boolean operation.

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