

Varieties of P -restriction semigroups.

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A P -restriction semigroup is a binary semigroup $(S, \cdot, +, *)$ that satisfies the ‘ P -Ehresmann’ identities $xx^* = x$, $(xy)^* = (x^*y)^*$, $(x^*y^*)^* = y^*x^*y^*$, $x^*x^* = x^*$, and their $+/*$ -duals, together with the linking identity $(x^*)^+ = x^*$ and the ‘generalized ample’ identity $x(yx)^* = x^+y^*x$ and *their* duals. Any variety of regular $*$ -semigroups induces a variety of P -restriction semigroups via the induced operations $a^+ = aa^{-1}$, $a^* = a^{-1}a$. In particular, the inverse semigroups induce restriction semigroups (a.k.a. weakly E -ample semigroups) in this fashion. I will consider this relationship in general and, in particular, for ‘orthodox’ P -restriction semigroups, through the study of the appropriate free objects.