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Bases for certain varieties of completely regular semigroups

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Abstract: Completely regular semigroups equipped with the unary operation of inversion within their maximal subgroups form a variety, denoted by \mathcal{CR} . The lattice of subvarieties of \mathcal{CR} is denoted by $\mathcal{L}(\mathcal{CR})$. For each variety in an \cap -subsemilattice Γ of $\mathcal{L}(\mathcal{CR})$, we construct at least one basis of identities, and for some important varieties, several. We single out certain remarkable types of bases of general interest. As an application for the local relation L , we construct \mathbf{L} -classes of all varieties in Γ . Two figures illustrate the theory.

Keywords: semigroup; completely regular; variety; basis; local relation

AMS Subject Classification: 20M07, 20M10

REFERENCES

- [1] Jones P. R., *On the lattice of varieties of completely regular semigroups*, J. Austral. Math. Soc. Ser. A **35** (1983), no. 2, 227–235.
- [2] Petrich M., *On the varieties of completely regular semigroups*, Semigroup Forum **25** (1982), no. 1–2, 153–169.
- [3] Petrich M., *Characterizations of certain completely regular varieties*, Semigroup Forum **66** (2003), no. 3, 381–400.
- [4] Petrich M., *A lattice of varieties of completely regular semigroups*, Comm. Algebra **42** (2014), no. 4, 1397–1413.
- [5] Petrich M., *Varieties of completely regular semigroups related to canonical varieties*, Semigroup Forum **90** (2015), no. 1, 53–99.
- [6] Petrich M., *A semilattice of varieties of completely regular semigroups*, Math. Bohem. **145** (2020), no. 1, 1–14.
- [7] Petrich M., *Relations on some varieties of completely regular semigroups*, manuscript.
- [8] Petrich M., Reilly N. R., *Operators related to E -disjunctive and fundamental completely regular semigroups*, J. Algebra **134** (1990), no. 1, 1–27.
- [9] Petrich M., Reilly N. R., *Operators related to idempotent generated and monoid completely regular semigroups*, J. Austral. Math. Soc. Ser. A **49** (1990), no. 1, 1–23.
- [10] Petrich M., Reilly N. R., *Completely Regular Semigroups*, Canadian Mathematical Society Series of Monographs and Advanced Texts, 23, A Wiley-Interscience Publication, John Wiley & Sons, New York, 1999.
- [11] Reilly N. R., *Varieties of completely regular semigroups*, J. Austral. Math. Soc. Ser. A **38** (1985), no. 3, 372–393.