

Seminar on Semigroups, Automata and Languages

Proper morphisms of two-sided restriction semigroups

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Abstract: We study a class of morphisms between two-sided restriction semigroups which we call *proper morphisms*. This is a generalization of the notion of an idempotent pure homomorphism of inverse semigroups. With each proper morphism $\psi : S \rightarrow T$ we associate two partial actions $\tilde{\psi}$ and $\hat{\psi}$ of T on $P(S)$, such that $S \cong P(S) \rtimes T$ with respect to each of the two underlying partial actions. We thus obtain a generalization of the Cornock's and Gould's result [1] on the description of proper restriction semigroups, as well as the partial action version [3] of the O'Carroll's result [4, 5] on idempotent pure extensions of inverse semigroups.

This is a joint work [2] with Mikhailo Dokuchaev (Universidade de São Paulo) and Ganna Kudryavtseva (University of Ljubljana).

References

- [1] Cornock, C., and Gould, V. *Proper two-sided restriction semigroups and partial actions*. J. Pure Appl. Algebra **216** (2012), 935–949.
- [2] Dokuchaev, M., Khrypchenko, M., and Kudryavtseva, G. *Partial actions and proper extensions of two-sided restriction semigroups*. (arXiv:1906.02149) (2019).
- [3] Khrypchenko, M. *Partial actions and an embedding theorem for inverse semigroups*. Periodica Mathematica Hungarica **78**, no. 1 (2019), 47–57.
- [4] O'Carroll, L. *Inverse semigroups as extensions of semilattices*. Glasgow Math. J. **16**, no. 1 (1975), 12–21.
- [5] O'Carroll, L. *Strongly E-reflexive inverse semigroups*. Proc. Edinburgh Math. Soc. (2) **20** (1977), 339–354.

Date: Friday, 20 September 2019, 14:30

Place: Room FC1 030, DMat-FCUP