

# On the order structure of $U$ -semiabundant semigroups

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In [1], three partial order relations were defined on  $U$ -semiabundant semigroups:

$$x \leq_e y \quad :\equiv \quad x^+ \omega y^+, x^* \leq y^* \text{ and } x = x^+ y x^*,$$

$$x \leq_l y \quad :\equiv \quad x^* \omega y^* \text{ and } x = y x^*,$$

$$x \leq_r y \quad :\equiv \quad x^+ \omega y^+ \text{ and } x = x^+ y,$$

where  $\omega$  is the standard order of idempotents. Properties of the left order,  $\leq_l$ , have been investigated in [2]; of course, those of the right order  $\leq_r$  are dual. One may still consider a relation  $\leq$  that is the intersection of the orders  $\leq_l$  and  $\leq_r$ . In the talk, we discuss the basic properties of the order  $\leq$  and also disclose its connections with  $\leq_e$ .

## References

- [1] M.V. Lawson, Semigroups and ordered categories, I. The reduced case, *J. Algebra* 141, 1991, no. 2, 422–462.
- [2] J. Cīrulis, Order structure of  $U$ -semiabundant semigroups and rings. Part I: Left Lawson's order, *Acta Sci. Math. (Szeged)* 86, 2020, no. 3–4, 359–403.