Lax epimorphisms of ordered algebras

Nasir Sohail[1]

Institute of Mathematics and Statistics, The University of Tartu

Although epimorphisms, shortly epis, provide a categorical generalization of surjective homomorphisms, there exist categories of algebras [1] where epis are not necessarily surjective. In the categories of ordered algebras one may consider lax epimorphisms, where the 'right' cancellation of a morphism across equalities is replaced with the 'right' cancellation across inequalities. In this talk, I shall present our recent work [2] where we have shown that lax epis of partially ordered monoids and semigroups (shortly pomonoids and posemigroups) are precisely the surjective morphisms. I shall also relate it to our earlier work [3] on epis of ordered algebras.

References

[1] E.W. Kiss, L. Márki. P. Pröhle, W. Tholen, Categorical algebraic properties. A compendium on amalgamation, congruence extension, epimorphisms, residual smallness, and injectivity. *Studia Sci. Math. Hungar.* 18, 79–140, 1982.

[2] N. Sohail, A. H. Shah, and S. A. Ahangar, On lax epimorphisms of partially ordered monoids (*Submitted*).

[3] N. Sohail and B. Tasić, On epimorphisms of ordered algebras, *Algebra Univers.* 81, 29, 2020.

[1] Joint work with A. H. Shah and S. A. Ahangar