Online Algebra, Logic, and Topology Seminar

Category Theory Seminar — Abstract

October 07, 2025

When are exact categories co-exact?

Speaker: James Gray
Stellenbosch University, South Africa
Date & Time: October 07, 2025 (Tuesday) — 3:00 PM (Coimbra time)
Place: Google Meet

Abstract. The aim of the talk is two-fold: (i) to explain that finitely co-complete pretoposes are co-ideally-exact [J] and co-arithmetical [P], and (ii) to explain that there are conditions in common between additive and lextensive categories, which together with exactness (and finite cocompleteness) imply co-exactness and co-protomodularity. As a consequence of (i) we recover Theorem 1.3 of [BC] which states that the dual of the category of pointed compact Hausdorff spaces is semi-abelian, which in fact was the motivation to begin this work.

References

[BC] F. Borceux, M.M. Clementino, *On toposes, algebraic theories, semi-abelian categories and compact Hausdorff spaces*, Theory and Applications of Categories 43(11), 363–381, 2025.

[J] G. Janelidze, *Ideally exact categories*, Theory and Applications of Categories 41(11), 414–425, 2024.

[P] M.C. Pedicchio, *A categorical approach to commutator theory*, Journal of Algebra 177, 647–657, 1995.