

Generalized central extensions and relative non-abelian homological algebra

T. Janelidze

University of Cape Town

tamar.janelidze@uct.ac.za

SAMS Subject Classification: Algebra

We will recall basic properties and some examples of generalized central extensions defined via Huq commutators [2] (see also [1]) in semi-abelian categories. Those properties will be used to prove that the composites of central extensions determine a relative semi-abelian category structure [3] on the ground category. We will then briefly describe how the relative versions of basic homological lemmas [4,5] apply to this case.

References

- [1] F. Borceux and D. Bourn, *Mal'cev, protomodular, homological and semi-abelian categories*, Mathematics and its Applications, Kluwer (2004).
- [2] S. A. Huq, *Commutator, nilpotency and solvability in categories*, Quart. J. Math. Oxford, 19 (2) (1968) 363-389.
- [3] T. Janelidze, *Relative semi-abelian categories*, Applied Categorical structures, 17 (2009) 373-386.
- [4] T. Janelidze, *Relative homological categories*, Journal of Homotopy and Related Structures, 1 (1) (2006) 185-194.
- [5] T. Janelidze, *Snake Lemma in incomplete relative homological categories*, Theory and Application of Categories, accepted for publication.