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A Galois theory of monoids

We show that the adjunction between monoids and groups obtained via the *Grothendieck group* construction is admissible, relatively to surjective homomorphisms, in the sense of categorical Galois theory [3]. The central extensions with respect to this Galois structure turn out to be the so-called *special homogeneous surjections* [1, 2]. As a consequence, special homogeneous surjections are reflective amongst surjective monoid morphisms.

References:

[1] D. Bourn, N. Martins-Ferreira, A. Montoli, and M. Sobral, *Schreier split epimorphisms between monoids*, Pré-Publicações DMUC **13-41** (2013), 1–15.

[2] D. Bourn, N. Martins-Ferreira, A. Montoli, and M. Sobral, *Schreier split epimorphisms in monoids and in semirings*, Textos de Matemática (Série B), Departamento de Matemática da Universidade de Coimbra, in press, 2013.

[3] G. Janelidze, *Pure Galois theory in categories*, J. Algebra **132** (1990), no. 2, 270–286.

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