

# Two ways to centralizers of equivalence relations

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Recent works dealing with new considerations about the notion centralizer of equivalence relations gave the opportunity to reveal beyond this construction wider-ranging phenomenons of functorial nature which do not belong, as it is well-known, to this notion by itself. And this was done in two distinct ways: on the one hand through the notion of *action accessible category* [2] and on the other hand through the notion of *fibrewise algebraically cartesian closed (facc) category* [1] which deals with the existence of centralizers of *subobjects* in the fibres  $Pt_Y\mathbb{E}$  of the fibration points:  $\mathbf{P}_{\mathbb{E}} : Pt\mathbb{E} \rightarrow \mathbb{E}$ .

This two notions are both illustrated by the categories  $Gp$  of groups and  $R$ -Lie of Lie  $R$ -algebras. The aim of this talk is to elucidate what is their common core and to analyse how they are articulated in general.

## REFERENCES

- [1] D. Bourn and J.R.A. Gray, *Aspects of algebraic exponentiation*, arXiv: 1112.4128, to appear in Bulletin de la Société Mathématique de Belgique (2011) 27 pp.
- [2] D. Bourn and G. Janelidze, *Centralizers in action accessible categories*, Cahiers de Top. et Géom. Diff. Catégoriques, **50** (2009) 211-232.