ACTOR OF A PRECROSSED MODULE IN LIE ALGEBRAS

J. M. Casas [1]

Dpto. de Matemática Aplicada I, Univ. de Vigo, 36005 Pontevedra, Spain

and

E. Ö. Uslu

Dpto. of Mathematics, Afyon Kocatepe University, Afyonkarahisar, Turkey

and

Dpto. de Matemática Aplicada I, Univ. de Vigo, 36005 Pontevedra, Spain

The notion of action between objects in a category was extensively studied from several general points of view, particularly, in the framework of semi-abelian categories [1, 2] and categories of interest [3].

Our goal in the present talk is the construction of the actor (object which represents actions in the category) of any object in the category **PXLie** of precrossed modules in the category of Lie algebras. Following [3], there is a general construction of the actor object in the framework of categories of interest. Unfortunately, **PXLie** is not equivalent to a category of interest, so we can not apply this approach in order to obtain the construction of actor. Then our proposal considers an adequate set of triples whose components are different kind of derivations and we endow this set with the necessary structure.

From this construction we derive the notions of action, center, semi-direct product, derivation, commutator and abelian precrossed module in **PXLie**. We prove that the notion of action is equivalent to the one given in semi-abelian categories and our construction of the actor of a precrossed module is the split extension classifier for the precrossed module in the sense of [1].

If we apply our construction to the case of the category of crossed modules in Lie algebras these notions give in a certain sense the corresponding ones for crossed modules in [4].

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E-mail address: J.M. Casas: jmcasas@uvigo.es
E-mail address: E. Ö. Uslu: euslu@aku.edu.tr