

# THE FIVE-TERM EXACT SEQUENCE FOR KAC COHOMOLOGY

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The set of equivalence classes of abelian extensions of Hopf algebras associated to a matched pair of finite groups turns out to be a group. This group was described by Kac in the 60's as the second cohomology group of a double complex, whose total cohomology is known as the Kac cohomology. Masuoka generalized this result and used it to construct and classify semisimple Hopf algebra extensions. Since Kac cohomology is defined as the total cohomology of a double complex, there is an associated spectral sequence. We compute the second page of this spectral sequence and the five-term exact sequence associated. Through some examples we show how this new exact sequence is very useful to compute the group of abelian extensions.

*Joint work with Yiby Morales (Universidad de los Andes).*