

Simple biset functors and the double Burnside ring

Wednesday, October 16, 2013 10:00 AM (45 minutes)

This is a joint work with Serge Bouc and Jacques Thévenaz.

Let G be a finite group and k be a field. The purpose of this talk is to investigate the simple modules for the double Burnside ring $kB(G;G)$.

It turns out that these modules are evaluations at G of simple biset functors. For a fixed finite group H , we introduce a suitable bilinear form on $kB(G;H)$ and prove that the quotient of the functor $kB(-;H)$ by the radical of the bilinear form is semi-simple. This allows for a description of the evaluation of simple functors, hence of simple modules for the double Burnside ring.

The evaluation of a simple biset functor at a finite group G may be zero. We give examples where this happens, as well as where this does not occur. Under some restrictive conditions on G we can give a closed formula for such an evaluation.

Mots Clés / Keywords

double Burnside ring, simple biset functors

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