Defense of the Doctoral Dissertation

Department of Mathematics

"Cross Effects and Stability"

Bridget Schreiner

University of Notre Dame
College of Science

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Examination Committee:
Mark Behrens, Advisor
Pavel Mnev
Andy Putman
Larry Taylor

Abstract:

We consider a generalization of the cross effects of Eilenberg and Mac Lane to categories suitable for studying homological and representation stability. Specifically, we consider functors $C \longrightarrow T\,op_*$ where C is N or F I, the category of finite sets and injections. We construct a spectral sequence computing the homology of our cross effects from the homology of such functors, as well as a spectral sequence reconstructing the homology of the values of the functor from the homology of its cross effects. Finally, we consider these cross effects in the context of the mod 2 homology of the symmetric groups.