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Vincent Franjou and **Eric M. Friedlander*** (eric@math.northwestern.edu), Department of Mathematics, Northwestern University, Evanston, IL 60208-2730. *Cohomology of Bifunctors*.

We initiate the study of the cohomology of (strict polynomial) bifunctors by introducing the foundational formalism, establishing numerous properties in analogy with the cohomology of functors, and providing computational techniques. Since one of the initial motivations for the study of functor cohomology was the determination of $H^*(GL(k), S^*(g\ell) \otimes \Lambda^*(g\ell))$, we keep this challenging example in mind as we achieve numerous computations which illustrate our methods. (Received August 27, 2005)