1035-13-715 **Anders J. Frankild**, **Sean Sather-Wagstaff** and **Roger Wiegand***
(rwiegand@math.unl.edu), Department of Mathematics, University of Nebraska, Lincoln, NE 68588-0130. *Ascent of module structures, vanishing of Ext, and extended modules.*

Let $(R, \mathfrak{m})$ and $(S, \mathfrak{n})$ be commutative Noetherian local rings, and let $\varphi : R \to S$ be a flat local homomorphism inducing an isomorphism on residue fields and satisfying the condition $\mathfrak{m}S = \mathfrak{n}$. Given a finitely generated R-module M, we show that M has an S-module structure compatible with its R-module stucture (if and) only if the natural map $M \to S \otimes_R M$ is an isomorphism. Another necessary and sufficient condition is that $\operatorname{Ext}^i_R(S, M) = 0$ for all $i > 0$. We consider also the question of which S-modules are extended from finitely generated R-modules. We show that when S is the Henselization of R every finitely generated S-module is a direct summand of an extended module, but that the analogous result fails for the completion. (Received September 14, 2007)