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Sean Sather-Wagstaff, North Dakota State University. *Gorenstein presentations and
semidualizing modules*. Preliminary report.

The trivial extension of an artin algebra Λ by the injective module $D(\Lambda)$ is of course a symmetric algebra. Extended to commutative Noetherian rings, possibly of positive Krull dimension, this fact characterizes dualizing modules: a Cohen–Macaulay local ring admits a dualizing module if and only if it is a homomorphic image of a Gorenstein local ring. We augment this result by showing that such a ring R admits a nontrivial *semidualizing* module if and only if it admits a presentation $R \cong Q/I$ with Q Gorenstein and such that the ideal I has a nontrivial decomposition $I = I_1 + I_2$ with Tor-independent totally reflexive quotients Q/I_j . Even in the artinian case, this is new. (Received September 14, 2009)