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*Lifting automorphisms of matrix invariants*

Let  $G$  be a reductive group over an algebraically closed field of characteristic zero. We study the question when automorphisms of the categorical quotient  $V//G$  may be lifted to  $V$  where  $V$  is the representation given by several copies (generally at least two) of the adjoint representation of  $G$ . As an application we determine the way an automorphism of  $V//G$  may act on the Luna stratification of  $V//G$ , a question studied earlier jointly with Z. Reichstein in the case of matrices.