A. Berenstein
Dept. of Mathematics, University of Oregon, Eugene, OR 97403, U.S.A.
`arkadiy@math.uoregon.edu`

V. Retakh
Dept. of Mathematics, Rutgers University, Piscataway, NJ 08854, U.S.A.
`vretakh@math.rutgers.edu`

Generalized Adjoint Actions

The aim of this paper is to generalize the classical formula

$$e^x y e^{-x} = \sum_{k \geq 0} \frac{1}{k!} \, (\text{ad } x)^k (y)$$

by replacing e^x with any formal power series

$$f(x) = 1 + \sum_{k \geq 1} a_k t^k.$$

We also obtain combinatorial applications to q-exponentials, q-binomials, and Hall-Littlewood polynomials.

Keywords: Adjoint action, commutator, q-exponential, Hall-Littlewood polynomial.

MSC: 20F40, 05E05