Richard P. Stanley* (rstan@math.mit.edu), Department of Mathematics, M.I.T., Cambridge, MA 02139. Reduced decompositions.

Let $s_i$ denote the adjacent transposition $(i, i+1) \in \mathfrak{S}_n$, $1 \leq i \leq n-1$. A reduced decomposition of a permutation $w \in \mathfrak{S}_n$ is a sequence $(b_1, \ldots, b_p)$ for which $w = s_{b_1} \cdots s_{b_p}$ and $p$ is minimal. A basic problem is to determine the number $r(w)$ of reduced decompositions of $w$. This problem leads to a rich theory involving Young tableaux, symmetric functions, a version of the RSK-algorithm, Schubert polynomials, Schur and Weyl modules, flag varieties, etc. (Received August 26, 2009)