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Eric S Egge* (eegge@carleton.edu), Department of Mathematics, Carleton College, Northfield, MN 55057. *Symmetric Permutations with No Long Decreasing Subsequences.*

It is well-known that the number of permutations in S_n with no decreasing subsequence of length 3 is the Catalan number $C_n = \frac{1}{n+1} \binom{2n}{n}$. Several authors have enumerated the permutations in S_n with no decreasing subsequence of length 4, and Gessel has used symmetric functions to express the generating function for permutations in S_n with no decreasing subsequence of length k as a determinant of Bessel functions. In this talk we describe how to use the Robinson-Schensted-Knuth correspondence and the combinatorics of tableaux to enumerate permutations in S_n with no decreasing subsequence of length k whose diagrams are rotationally symmetric. (Received August 19, 2009)