

Parity and Stack-Sortability

Miklós Bóna
Department of Mathematics
University of Florida
Gainesville, FL 32611
bona@math.ufl.edu

February 4, 2005

It has long been known, and is not difficult to prove, that the Catalan numbers C_n are odd if and only if $n = 2^k - 1$, for some non-negative integer k . We will look at generalizations of this statement in the following direction. Catalan numbers count *1-stack* sortable permutations of length n . What can we say for t -stack sortable permutations, for various definitions of t -stack sortability?

While for $t = 2$, this question could be answered by using the explicit formula for the number of these permutations, we prefer combinatorial arguments.