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Stack Sorting. Preliminary report.

Sorting permutations with stacks was first introduced in the 1960s by Knuth. He proved that a permutation is one stack sortable if it avoids a 231-pattern. He also proved that the number of n -permutations that are one stack sortable is the Catalan Number C_n . This paper will investigate more closely the exact number of stack sorts needed for n -permutations based on different patterns. Along with the Catalan numbers, sequences of n -permutations that are x stack sortable with $n < 9$ will be shown. (Received September 15, 2012)