

1117-05-225

Michael H Albert, Cheyne Homberger, Jay Pantone, Nathaniel Shar and Vincent Vatter*, vatter@ufl.edu. *Generating permutations with restricted containers.*

In *The Art of Computer Science*, Knuth asks the reader to prove that the permutations that can be generated by a stack are those that avoid the pattern 312. This exercise is generally credited with initiating the study of permutation patterns.

We study sorting mechanisms called C-machines which generalize the notion of both stacks and queues. Using C-machines we are able to obtain thousands of terms of the enumeration sequence of several classes of permutations which have unknown enumerations. In several of these cases we have evidence indicating that the enumeration sequences are not D-finite. (Received January 14, 2016)