## Getting asymptotics using the Frobenius method

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The class of D-finite functions (aka holonomic or P-recursive for the univariate case) is the largest class of generating functions that is met in combinatorics. This class has a lot of nice closure properties (by union, Cauchy and Hadamard product, shuffle, diagonal, Borel transform, some substitutions...) and includes all the algebraic or hypergeometric functions.

The Frobenius method is one of the most general way to tackle the asymptotics of coefficients of a D-finite function.

I will explain how the Frobenius method works, to what extend it can be automatized in computer algebra systems, and I will give applications to formulae counting patterns in permutations.

As a byproduct, it gives an alternative proof of the Stanley-Wilf exconjecture... in the D-finite case.