

Symbolic Analysis for Lattice Path Combinatorics

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We give an overview of a recent line of research showing how several problems of enumerative combinatorics can be systematically solved using an experimental-mathematics approach combined with modern computer algebra algorithms. We describe the computer-driven discovery and proof of structural properties and closed forms for generating functions coming from enumeration of lattice walks with small steps in the quarter plane. The results are taken from several joint works with Frédéric Chyzak, Philippe Flajolet, Mark van Hoeij, Manuel Kauers, Lucien Pech and Karol Penson.