Agapito, José; Mestre, Ângela; Torres, Maria M.; Petrullo, Pasquale
On one-parameter Catalan arrays. (English) Zbl 1329.05036
J. Integer Seq. 18, No. 5, Article 15.5.1, 13 p. (2015).

Summary: We present a parametric family of Riordan arrays, which are obtained by multiplying any 
Riordan array with a generalized Pascal array. In particular, we focus on some interesting properties 
of one-parameter Catalan triangles. We obtain several combinatorial identities that involve two special 
Catalan matrices, the Chebyshev polynomials of the second kind, some periodic sequences, and the 
Fibonacci numbers.

MSC:
05B15 Orthogonal arrays, Latin squares, Room squares
05A19 Combinatorial identities, bijective combinatorics
11B37 Recurrences

Keywords:
Riordan array; Pascal array; Catalan triangle; Sheffer polynomial; combinatorial identity; recurrence; 
Chebyshev polynomial; Fibonacci number

Software:
OEIS

Full Text: arXiv EMIS