

## **Multiplex Juggling and Generalized Eulerian Numbers**

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We consider a generalization of Eulerian numbers which count the number of placements of  $cn$  “rooks” on an  $n \times n$  board where there are exactly  $c$  rooks in each row and each column, and exactly  $k$  rooks below the main diagonal. The standard Eulerian numbers correspond to the case  $c = 1$ . For any  $c$  the resulting numbers are symmetric and give generating functions of these numbers for small values of  $k$ .

Keywords: juggling sequence, multiplex juggling, Eulerian numbers, rook placements