Spiros D. Dafnis, Frosso S. Makri, and Andreas N. Philippou
Restricted occupancy of s kinds of cells and generalized Pascal triangles,

Abstract

There are several well-known formulas counting the number of distinct allocations of \( n \) indistinguishable objects into \( m \) distinguishable cells, each of which has capacity \( k - 1 \). In the present paper we generalize four of them by relaxing the assumption that each of the \( m \) cells has capacity \( k - 1 \) and assuming instead that there are \( s \) kinds of cells and each cell of kind \( i \) has capacity \( k_i - 1 \) \( (i = 1, \ldots, s) \). A generalization of the Pascal triangles of order \( k \) is also discussed.