

Augustine O. Munagi
Combinations with successions and Fibonacci numbers,
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Abstract

In his book *Combinatorial Identities* John Riordan considers the enumeration of k -combinations of $\{1, 2, \dots, n\}$ which contain a specified number of pairs of consecutive integers, or successions. We study variations and generalizations of the original idea of combinations with successions and obtain enumerative recurrences and formulas. We show that formulas for combinations with successions also enumerate a class of restricted compositions and the multi-step Fibonacci numbers.