Abstract

It is well-known that the Fibonacci sequence, F_n, is the number of ways to cover a 2-by-$(n-1)$ board using only horizontal (H) or vertical (V) 2-by-1 dominoes. The number of ways to tile a rectangular m-by-n board by these dominoes was given in 1961 by Kasteleyn through the evaluation of a determinant. In this paper, we apply an automated method for the mixed moments $E[V^a H^b]$ for fixed non-negative integers a, b on a general m-by-n board. These moments will give information about the distribution of "V-H statistics". This is an implementation of the work of Zeilberger.