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A Bijection for the Fibonomial Coefficients,
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Abstract

The combinatorial properties of the Fibonomial coefficients, defined as $\binom{n}{k}_{\mathcal{F}} = \frac{F_n!}{F_k! F_{n-k}!}$ were originally explored by Benjamin and Plott in 2008 and further examined by Sagan and Savage in 2010. Sagan and Savage gave a combinatorial interpretation of these coefficients in terms of tilings of an $(n-k) \times k$ rectangle containing a path. The proof of this combinatorial interpretation was dependent on showing these tilings satisfied a recurrence known to be satisfied by the Fibonomial coefficients and the more general Lucanomials. In this paper, we give a combinatorial proof that $F_n! = F_k! F_{n-k}! |SSP_{\binom{n}{k}}|$, where $SSP_{\binom{n}{k}}$ is the set of Sagan and Savage tilings of an $(n-k) \times k$ rectangle.