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A New Computation of Viswanath's Constant

The random Fibonacci sequence is defined by $t_1 = t_2 = 1$ and $t_n = \pm t_{n-1} + t_{n-2}$, for $n \geq 3$, where the $\pm$ sign is chosen at random with equal probabilities. We can think of all possible such sequences as forming a binary tree T. Viswanath has shown that almost all random Fibonacci sequences grow exponentially at the rate 1.13198824... He was only able to compute 8 decimal places of this constant, although Bai has extended the constant by 5 decimal places. We will discuss a new and simpler computation of Viswanath's constant which at present gives 8 decimal places of accuracy, but we feel this can be improved. It is based on a formula due to Kalmár-Nagy, and uses an interesting reduction of the tree T developed by Rittaud.