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*Discovering Fibonacci Numbers, Fibonacci Words, and a Fibonacci
Fractal in the Tower of Hanoi,*
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Abstract

The Tower of Hanoi puzzle, with three pegs and n graduated discs, was invented by Édouard Lucas in 1883, writing under the name of Professor Claus. A simple question about relative distances between various regular states of this puzzle has led to the discovery of a new occurrence of Fibonacci numbers, a new illustration of the finite Fibonacci words, and a fractal of Hausdorff dimension $\log_2(\phi)$, where ϕ is the Golden ratio.