

Trevor Evans Award

The Trevor Evans Award, established by the Board of Governors in 1992 and first awarded in 1996, is made to authors of expository articles accessible to undergraduates and published in *Math Horizons*. The Award is named for Trevor Evans, a distinguished mathematician, teacher, and writer at Emory University.

Cornelia A. Van Cott

“The Integer Hokey Pokey,” *Math Horizons*, vol. 28 no. 2, 24–27. 10.1080/10724117.2020.1809284

In this lively article, the author leads the reader on an investigation of positive integers. Van Cott invites the reader to imagine integers doing a numerical Hokey Pokey dance: reversing the order of their digits upon being multiplied by a positive integer n . Integers that can do the dance are called n -flips and generalize integer palindromes (1-flips). Foundational questions about n -flips are answered using only logic and arithmetic. The analysis reveals the role of the Fibonacci sequence in the count of the number of integers of length k that are 9-flips or 4-flips (the only n -flips, other than palindromes, in base 10). With complete answers in hand for what n -flips exist and how many there are among integers with any fixed number of digits, Van Cott proposes considering the same questions in other bases. By sharing some of the partial results and describing a useful combinatorial tool (a decorated directed graph), Van Cott inspires the reader to prove those results and find more. The article closes with mention of cyclic integers of length k , whose digits are cyclically permuted upon multiplication by $1, 2, \dots, k-1$, and k , and their connection with full period primes. The reader is left with clear ideas for continued play, further reading, and hard work if so inclined.

Response

What a wonderful surprise and honor to receive this award from the MAA! My first time speaking on the topic of this article was back in 2015 at MathPath, a summer camp for children interested in mathematics. The campers' enthusiastic engagement with the subject motivated me to write things down in expository form, and so I thank these campers for their contributions and inspiration during that hot summer of 2015. In addition, I thank Adrienne Slawik, a student at Pacific Lutheran University, who contributed the artwork for the front page of the article. Finally, I thank Tom Edgar, editor of *Math Horizons*, for his support during the publication process.

Biographical Sketch

Cornelia Van Cott is associate professor of mathematics at the University of San Francisco, where she has been since 2008. She received her BS in mathematics at Wheaton College (Wheaton, Illinois) and her PhD at Indiana University. Outside of teaching, Cornelia enjoys thinking about geometric topology and speaking about mathematics to all audiences—from children to adults.