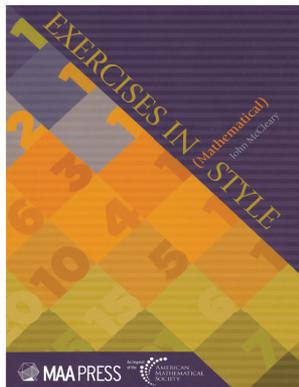


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*Exercises in Mathematical Style*  
(NML/50, 2017)  
by John McCleary

Raymond Queneau, founder of Oulipo, was inspired in his literary experimentation by the forms and patterns of mathematics. In a nice bit of reciprocity, John McCleary's *Exercises in (Mathematical) Style* was inspired by Queneau's *Exercises in Style*. Queneau tells 99

versions of the same—meaningless, uninteresting—story of an encounter on a bus in 99 stylistically distinct ways. McCleary tells 99 stories of the binomial coefficients in a variety of voices, styles, and forms. McCleary's stories have the advantage that they are not uninteresting and are not all the same; it's not just style, it's substance, too.

In the voice of Newton, McCleary explains the discovery of the binomial theorem via interpolation in the rows of Pascal's triangle. In Gauss's voice, he sums the series:

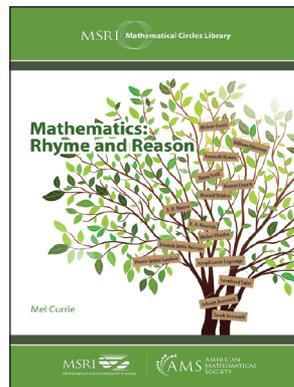
$$\sum_{k=0}^N \cos(2\pi k^2/N) + i \sin(2\pi k^2/N).$$

In Bourbaki's voice—the piece starts with two completely unmotivated definitions and a proposition—he counts the number of surjections from an  $n$ -element set to a  $k$ -element set. We overhear a Newton/Abel afterlife conversation, and listen in on a call-in radio show with two Bernoulli brothers standing in for Tom and Ray Magliozzi. A variety of literary forms are represented: a limerick, a tanaka, a lipogram, and a series of tweets! All explain something interesting about the binomial coefficients.

My absolute favorite chapter has to be "On The Bus," McCleary, in a nice homage, retells the banal story of Queneau's *Exercises* while incorporating a proof of the, weird-looking, identity:

$$\sum_k \binom{n}{k}^2 * \binom{3n+k}{2n} = \binom{3n}{n}^2.$$

The AMS Bookshelf is prepared bimonthly by AMS Acquisitions Specialist for MAA Press titles Stephen Kennedy. His email address is [kennedy.maapress@ams.org](mailto:kennedy.maapress@ams.org).



*Mathematics: Rhyme and Reason*  
(MCL/22, 2018)  
by Melvin J. Currie

Mel Currie's *Mathematics: Rhyme and Reason* is not exactly a memoir, it contains too much expository mathematics to be just that, but it's not merely exposition either. In the Preface he says that he tried to produce a book that would have appealed to, and informed, his

eighteen-year-old self. He wanted to show that eighteen-year-old some beautiful mathematics, clearly and elegantly explained, but also something of the culture of mathematics, and some inkling of what it might be like to have a life in mathematics, and how one might go about getting there.

Currie calls his stories "nursery rhymes of mathematics," in part to reflect their mathematical level, but even more to indicate his purpose: to introduce his reader to the culture of mathematics. One of the most compelling features of the book is the way Currie intertwines the personal and mathematical. Every nursery rhyme is about a topic in mathematics, but the topics chosen are all ones which featured in Currie's life and development as a mathematician, topics with which he has a personal relationship. In the chapter on primes, for example, he presents Euclid's proof that there are infinitely many, describes Fermat's Last theorem and the Twin Prime conjecture. At the same time he also tells the story of his introduction to these topics as a high school senior, tells the story of Yitang Zhang and his prime gap work and its reception, and he relates the charming story of watching Zhang listen to Andrew Granville explain Zhang's work at the Joint Mathematics Meetings.

Mixed in with the mathematics and the personal history are a fair amount of gossip and tomfoolery. There is a great story about what it's like to have Erdős as a houseguest (and waking to find him standing over your bed in the middle of the night). And one about what happens when you introduce the topic of anagrams into a crowd of mathematicians (Currie describes it as introducing "a virus in a vulnerable population.") The whole thing is lively, compelling and, ultimately, beguiling.