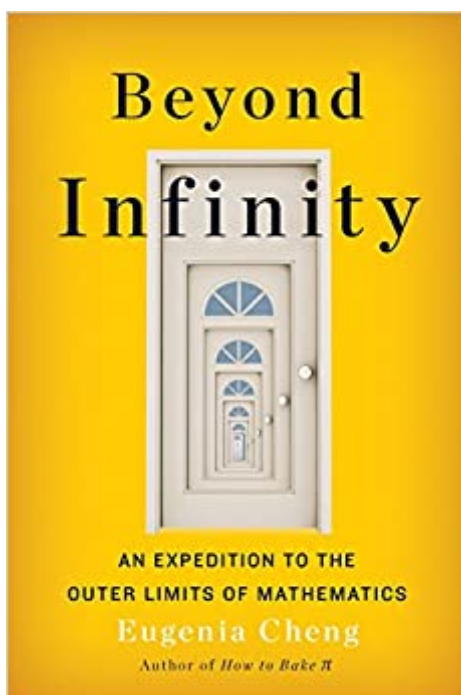


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# Beyond Infinity: An Expedition To The Outer Limits Of Mathematics



## Synopsis

"[Cheng] does a great service by showing us non-mathematician schlubs how real mathematical creativity works." --Wall Street Journal  
Whether pondering why some numbers are uncountable, or why infinity + 1 is not the same as 1 + infinity, we've all asked the same question: What is infinity? In *Beyond Infinity*, Eugenia Cheng takes us on a staggering journey from elemental math to its loftiest abstractions. Along the way she considers how to use a chessboard to plan a worldwide dinner party, how to make a chicken-sandwich sandwich, and how to create infinite cookies from a finite ball of dough. *Beyond Infinity* shows how this little symbol holds the biggest idea of all. "*Beyond Infinity* is a spirited and friendly guide--appealingly down to earth about math that's extremely far out." --Jordan Ellenberg, author of *How Not to Be Wrong* "Dr. Cheng . . . has a knack for brushing aside conventions and edicts, like so many pie crumbs from a cutting board."--Natalie Angier, *New York Times*

## Book Information

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## Customer Reviews

PRAISE FOR BEYOND INFINITY "Ms. Cheng's chatty tone keeps things fresh. She has a knack for folksy analogies, and at different points in the book she illuminates different properties of infinity by discussing Legos, the iPod Shuffle, snorkeling, Battenberg cakes and Winnie-the-Pooh... she does a great service by showing us non-mathematician schlubs how real mathematical creativity works." --Wall Street Journal "Our minds cannot truly grasp the concept of infinity, but Eugenia Chang takes us on a wild journey to help us in our search for it. It's a small, unassuming symbol, but it holds a giant idea. Cheng helps us understand the basics of infinity and then takes us on a ride to see its

most lofty applications. From the practical to the entirely theoretical, this is a book to watch for."

--Paste Magazine "The idea of infinity is one of the most perplexing things in mathematics, and the most fun. Eugenia Cheng's *Beyond Infinity* is a spirited and friendly guide--appealingly down to earth about math that's extremely far out."--Jordan Ellenberg, author of *How Not to Be Wrong* and professor of mathematics at University of Wisconsin-Madison

"*Beyond Infinity* is witty, charming, and crystal clear. Eugenia Cheng's enthusiasm and carefully chosen metaphors and analogies carry us effortlessly through the mathematical landscape of the infinite. A brilliant book!"--Ian Stewart, author of *Calculating the Cosmos*

PRAISE FOR EUGENIA CHENG "[Cheng] conveys the spirit of inventiveness and creativity in math... Refreshing is the word that keeps coming to mind."

--Steven Strogatz, as quoted in the *New York Times* "Dr. Cheng...has a knack for brushing aside conventions and edicts, like so many pie crumbs from a cutting board."--Natalie Angier, *New York Times*

"[Eugenia Cheng's] tone is clear, clever and friendly. Even at her most whimsical she is rigorous and insightful... [She is] a lucid and nimble expositor." --Alex Bellos, *New York Times Book Review*

Eugenia Cheng is an honorary fellow in pure mathematics at the University of Sheffield and the scientist in residence at the School of the Art Institute of Chicago. She lives in Chicago, Illinois.

Well written, logical approach easy to follow by the Mathematical Amateurs such as myself.

Perfect reading material for a visit to Hilbert's Hotel (which has unlimited rooms and hence unlimited spaces in which to read), Eugenia Cheng's new book is an absolute delight. Cheng explores the bizarre implications of the infinite, and shows how not all infinities are the same. Her sense of humor is extraordinary and the examples highly imaginative, making the book a pleasure to read. For example, she compares the power of mathematicians to that of a spoiled child who must face the consequences of asking for (and promptly being eaten by) a pet lion; be careful what you wish for is the valuable lesson. Cheng makes mathematics seem so fun, I can imagine the book inspiring many young readers to pursue careers in the field. All in all, a book as entertaining as the works of Lewis Carroll.-Paul Halpern, author of *The Quantum Labyrinth: How Richard Feynman and John Wheeler Revolutionized Time and Reality*

I seem to be badly out of step with the current trend in popular science books. The chatty style in this one, including anecdotes from the author's personal life, did not grab me at all. I had the same

feeling about a book on the fine structure constant, and my review on that has been poorly received. I have the same feeling about the two books: no worries at all about the expertise of the authors or the science contained in the books. Personally, though, I'd rather put the chat to one side and concentrate on the science. The other reviews of this book (and that) suggest that they are doing a good job in communicating science to the lay reader and I thoroughly approve of such an achievement. So, well done for that, and I'll face up to being out of step.

If you have a questioning mind, and or a desire to understand how math can and should be used to encourage and instruct critical thinking this is a book for you !

Great people have tackle infinity, infinity even drove some of them to madness. Of course for some people that's just a short drive. Eugenia Cheng just took a short walk to the kitchen took a recipe and cooked up some good stuff to eat and does a great job of using them to talk about infinity. Her knowledge seems to be infinite. I would highly recommend this book to anyone who might be just a little bit curious about infinity.

I am enjoying the book very much. Also, I saw Eugenia on TV yesterday talking about the book, and that mad the enjoyment of reading the book even greater. She writes quite well for a reader like me - non-mathematician.

Average book material wise but the printing of the book and the paper they use is very poor quality.

Eugenia Cheng's book on infinity is a delightful, deceptively sophisticated introduction to math's most mind-bending topic. It covers ground that math lovers will find familiar (e.g., Zeno's paradoxes, Cantor's theory of transfinite numbers, diverging and converging series, Hilbert's Hotel, Dedekind and Cantor's constructions of real numbers). But its artful explanations are highly original. Cheng has a rare knack for translating challenging mathematical abstractions into easily-grasped terms through the use of concrete metaphors and down-to-earth analogies. In one of my favorite examples, she deftly elucidates the strange nature of infinite ordinal numbers by describing the key ideas involved in terms of the amount of hassle involved in accommodating extra guests at an infinitely large hotel. (The Hilbert.) I was also charmed by her explanations of exponential growth in terms of puff pastry (and I learned some interesting baking lore along the way), by her referring to the iPod Shuffle to explain factorial growth,

and by her explanation of how to make an infinitely long line of cookies with a (weirdly) finite amount of dough. Superb analogies like these are invaluable for helping non-experts get their minds around math concepts, and dreaming them up requires a special talent for isolating the essence of abstract ideas and figuring out how to put them in familiar terms. (Which I know from personal experience is a lot harder than it looks.) Few writers on math I've run across are as good at this as Cheng. I found her book almost shockingly readable, and she engagingly conveys her sense of delight about the mathematical enterprise throughout—it's baked with joy.

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