Beyond the Reals: An Exploration of Mathematics in Fiction

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Description

Perhaps the most fundamental component of mathematics is its loyalty towards truth. From a set of well-defined axioms follow plethoric theorems, and any conjectures must ultimately stand the test of rigorous proof before full acceptance into the proper mathematical canon. Fiction might appear to be contrary to this approach, since it revels in the nonfactual and imaginary, but mathematicians will be the first to admit that any resemblances to the real world in their work are merely coincidental: it is the axioms that determine truth, and the internal consistency that matters. Likewise, the authors of fiction tweak the axioms which define their worlds away from those which bind ours, producing hypotheticals no less fruitful than non-Euclidean space.

The question this seminar poses to its participants is somewhat narrow, but of broader interest. When mathematics and fiction are intimately brought together — when an author, whether with the intention of using fiction as a pedagogical device to elucidate a mathematical concept, or using mathematical concepts as a literary technique to enrich his or her fiction, interweaves the two disciplines — of what form is the result? Can we characterise the work purely as segments of one field and the other, or do there exist novel characteristics which emerge from the amalgamation of the two? It is my hope that this exploration will not only be fascinating of its own accord, but also probe into the nature of mathematics and fiction, from both theoretical and cultural standpoints.

This seminar is primarily intended to attract students interested in mathematics and in literature, but certainly has a wider potential appeal. Works such as *Einstein's Dreams* invoke physics, *Gödel, Escher, Bach* is of prime interest to a computer scientist or anyone interested in the mind, and *Flatland* as well as the works of Lewis Carroll offer an intriguing perspective into the history of mathematics. *We* should interest political scientists, and I personally find linguistic interest in how the typically rigorously defined lexicon of mathematics interacts with the often more metaphoric verbage of traditional literature.

Potential Works

Geometry

Flatland: A Romance of Many Dimensions by Edwin Abbott Abbott
The No-Sided Professor by Martin Gardner (short story, in *The No-Sided Professor*)
The Origin of Geometry by Derrida (theory)
The Planiverse: Computer Contact with a Two-Dimensional World Book by Alexander Dewdney
The Manuscript Found in Saragossa by Jan Potocki

Logic

The Annotated Alice: The Definitive Edition by Lewis Carroll and Martin Gardner
What the Tortoise Said to Achilles by Lewis Carroll (short story)
(*Sylvie and Bruno* by Lewis Carroll)
Gödel, Escher, Bach: an Eternal Golden Braid by Douglas Hofstadter
How Kazir Won His Wife by Raymond Smullyan (short story)

Infinity

The Book of Sand by Jorge Luis Borges (short story, in *Collected Fictions*)
The Library of Babel by Jorge Luis Borges (short story, in *Collected Fictions*)
The Extraordinary Hotel, or the Thousand and First Journey of Ion the Quiet by Stanislaw Lem (short story, in *Imaginary Numbers*)
The Neverending Story by Michael Ende (trans. Ralph Manheim)

Time

The Garden of Time by J. G. Ballard (short story, in *Imaginary Numbers*)
The Garden of Forking Paths by Jorge Luis Borges (short story, in *Collected Fictions*)
Einstein's Dreams by Alan Lightman
(*The Magic Mountain* by Thomas Mann)
War and Peace by Leo Tolstoy

(Un)popular Conceptions of Mathematicians

The Secret Number dir. Colin Levy (short film)
The Housekeeper and the Professor by Yoko Ogawa (trans. Stephen Snyder)
Life A User's Manual by Georges Perec
(*The Policeman's Beard is Half-Constructed* by Racter)
A New Golden Age by Rudy Rucker (short story, in *Imaginary Numbers*)
Arcadia by Tom Stoppard (play)
We by Yevgeny Zamayatin

Anthologies & Collections

Imaginary Numbers ed. William Frucht
Collected Fictions by Jorge Luis Borges (trans. Andrew Hurley)
The No-Sided Professor by Martin Gardner

Potential Speakers

Douglas Hofstadter is the author of Pulitzer Prize-winning *Gödel, Escher, Bach*, as well as several other works mostly pertaining to cognitive science in some regard. He is also known for writing *Metamagical Themas*, a column which succeeded Richard Gardner's classic *Mathematical Games* in *Scientific American*. Hofstadter, if attainable as a speaker, would greatly interest the broader communities of mathematicians and those interested in cognitive science at Haverford, as well as any interested in scientific/mathematical pedagogy.

Alan Lightman is the author of bestselling *Einstein's Dreams*, and his work has focused largely on the intersection between science and the humanities.

William Frucht is the editor of *Imaginary Numbers*, and an executive editor of Yale University Press.