



THE FIELDS INSTITUTE FOR RESEARCH IN MATHEMATICAL SCIENCES

*The Nathan and Beatrice Keyfitz Lectures in
Mathematics and the Social Sciences*

The Ubiquity of Analogy in Mathematical Thought

Douglas R. Hofstadter, Indiana University

March 21, 2013 — 6:00 p.m.

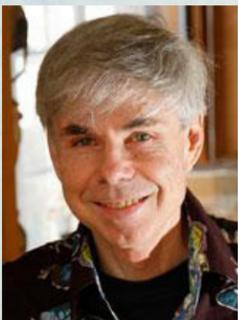
Room 610, Health Sciences Building, University of Toronto

Mathematicians generally like to present their work in the wraps of extreme rigor and pure logic. This professional posture is in some ways very admirable. However, where do their ideas really come from? Do they strictly follow the straight-and-narrow pathways of pure, rigorous, logical axiomatic deduction in order to reach their often astonishing conclusions?

No.

This talk will be about how deeply and universally mathematical thought, at all levels of sophistication, is riddled with impure, nonrigorous, illogical intuitions originating in analogies, often highly unconscious ones. Some of these analogies are good and some of them are bad, but good or bad, it is they that lurk behind the scenes of all mathematical thought.

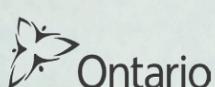
What is curious, to my mind, is that so few mathematicians seem to take pleasure in examining and exploring this crucial and wonderful aspect of their minds, their thoughts, and their deep discoveries. Perhaps, however, they can be stimulated to examine their own hidden thinking processes if the ubiquity of analogies can be made sufficiently vivid as to grab their interest.



About Douglas Hofstadter

Douglas R. Hofstadter is an American professor of cognitive science whose research focuses on the sense of “I”, consciousness, analogy-making, artistic creation, literary translation, and discovery in mathematics and physics. He is best known for his book *Gödel, Escher, Bach: an Eternal Golden Braid*, first published in 1979. It won both the Pulitzer Prize for general non-fiction and a National Book Award (at that time known as The American Book Award) for Science. His 2007 book *I Am a Strange Loop* won the Los Angeles Times Book Prize for Science and Technology.

The Keyfitz lectures are on topics of interest to the university community as well as individuals involved in public administration, economics, health policy, and social and political science. The series has two purposes: to inform the public of ways quantitative methods are being used to design solutions to societal problems, as well as to encourage dialogue between mathematical and social scientists. The lectures are open to the public and all are welcome to attend.



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222 College Street, Toronto, ON M5T 3J1 Canada • Phone: (416) 348-9710 • Fax: (416) 348-9759 • www.fields.utoronto.ca