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ON SCIENCE

The Boston Globe

A haunted thinker and his legacy

By Anthony Doerr | April 24, 2005

Kurt Gödel was a 5-foot-6-inch titan, a reticent introvert who "produced the most loquacious theorems in the history of mathematics," to quote novelist Rebecca Goldstein. Close friends with Albert Einstein, the most significant logician since Aristotle, Gödel was also a man who hid from visitors and whose lifelong hypochondria ultimately deteriorated into paranoia and self-starvation.

Skeletal but frustratingly opaque, revolutionary but fearful of controversy, Gödel is an almost-paradox: a man of intense conviction with an anti-charisma, a thinker whose famous theorems have had enormous but often misappropriated implications.

A thumbnail of his personality is in many ways a thumbnail of his most famous proof. Roughly, Gödel's incompleteness theorems prove that there can be true arithmetical propositions that cannot be proved. Or, in Goldstein's words, "A system rich enough to contain arithmetic cannot be both consistent and complete."

Paradox, conundrum, metaphor. To try to capture in prose the simple but complex nature of Gödel and his work is flat-out daunting. Of course, any attempt to systematize any person's life -- to capture between the covers of a book every contradiction, every gradation in character -- is doomed to failure, but there can be no biography in which incompleteness would weigh more heavily on a writer's mind than Gödel's.

Nonetheless, in **"Incompleteness: The Proof and Paradox of Kurt Gödel,"** Goldstein does a formidable job. Central to her approach is a revision: For over 70 years, rebels against objectivity (existentialists and postmodernists, in particular) have heard what they wanted to hear in Gödel's theorems. They draw from them the suggestion that formal systems, like arithmetic, are social constructs. If even our most codified systems of thought are incomplete, the reasoning follows, then all truths are obviously and essentially manufactured.

But Goldstein argues -- very convincingly -- that Gödel was in fact a Platonist who believed the universe possesses an abstract reality graspable not through the senses but through reason. Mathematical truths are not manufactured, he would argue; they are universal and objective; they exist independent of anything human. Think of them like distant planets, orbiting in the darkness; their existence has nothing to do with whether we're able to detect them or not.

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The irony here is that Gödel's celebrated theorems were and continue to be hijacked by the very thinkers to whom he was diametrically opposed. Thus the Austrian exile from Nazi Germany was doubly exiled, and his isolation and ultimate descent into delusion become more poignant.

The final chapter of "Incompleteness" deals with Gödel's late work. Enter another book about Gödel, **"A World Without Time,"** by Palle Yourgrau, a philosophy professor at Brandeis. Yourgrau, too, is interested in revision. In his case, he hopes to rescue Gödel's ideas about time from obscurity. There is, Yourgrau believes, a "conspiracy of silence" shrouding the fruits of Gödel's conversations with Einstein.   *Continued...*

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