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From Reader Review Incompleteness: The Proof and Paradox of Kurt Gödel for online ebook

Brad Lyerla says

INCOMPLETENESS is an excellent book about an intellectually elusive subject. Kurt Godel's fame was established by his proof of something called "the Incompleteness Theorem." His proof employed formal logic to establish a basic truth about mathematics. Namely, that in closed systems, there will be true statements that cannot be proved. Until Godel's proof, many leading mathematicians assumed the opposite was true. This is a challenging subject to write about, but Goldstein makes it easily accessible to a casual reader of science and philosophy like me.

Godel's personal story is interesting. He was not a Jew, but had many colleagues who were. Yet, he failed to take a stance against the Nazis, instead choosing to continue his work even as Hitler's policies forced the Universities of Germany and Austria to purge Jewish faculty members. It is unclear how much he knew about worst atrocities perpetrated by the Nazis. Later, Godel immigrated to the US and became a close friend and frequent companion of Albert Einstein in Princeton, NJ. Godel struggled with mental illness and, ultimately, it contributed to his death.

I may bestir myself to write a full review of INCOMPLETENESS eventually. In the meantime, I recommend the book highly and I am deeply impressed with Goldstein. I look forward to reading more of her stuff.

Peter Flom says

This is a great book about a strange and brilliant man. It's hard to think of a writer better qualified to write it than Rebecca Goldstein. Full review: http://www.allvoices.com/contributed-...

Szplug says

The more I think about language, the more it amazes me that people ever understand each other at all.

Fucking Gödel.

The above (pictured with a rueful smile and head shake) succinctly summarizes my feelings for the incomparable Kurt Gödel—the greatest logician since Aristotle, as Rebecca Goldstein makes sure to iterate several times—the quiet and unassuming genius whose steel-trap mind could capture those ethereal abstract truths and convert them into human language constructs; who single-handedly elevated mathematical logic to a respectable berth at the table; who produced several earth-shaking proofs that performed the almost unheard-of double duty of having mathematical *and* metamathematical implications; the dear friend of Einstein who presented the latter, on his 70th birthday, with mind-bending solutions to his field equations; the paranoid recluse who, seeing conspiracies everywhere, eventually died from starvation when his wife, being in the hospital, was no longer available to prepare his food and thus left him wide open to his pervasive fear of being poisoned by ill-wishers and positivist conspirators.

Goldstein quite clearly harbors a fondness and admiration for the eccentric logician, whom she once saw in person at a Princeton house party, and she does an excellent job of situating him within his time period, his academic milieu, his long tenure at the Princeton-adjunct *Institute for Advanced Studies* and, especially, in describing both his two Incompleteness Theorems—having first outlined his graduate student dissertation on Completeness—and explaining the immense impact they had upon the mathematical, scientific, and philosophic world once they had interpenetrated these disciplines of the mind.

I've read other reviews that complain about the amount of time she devotes to Wittgenstein, who is said to be peripheral to the wonders that Gödel created, but I think she made a smart choice. Not only does the fiery and charismatic Wittgenstein add some missing color to the proceedings, but Goldstein makes an IMO apt analogy between the thought of the philosopher during his *Tractatus Logico-Philosophicus* period and Gödel's Theorems. That the latter proclaims first that in a formal mathematical system of assumed consistency there will exist a statement that is both true and unprovable; and second that said formal system's consistency cannot be proved from within itself, is, as Goldstein argues, from the same mental territory that Wittgenstein drew from in his early thought. The *TLP* end statement *Whereof one cannot speak, one must pass over in silence* hints that the *silence* contains all of the *important* things; abstractions that inhabit the same Platonic ideality that Gödel believed existed. Two brilliant Viennese, one a Platonist amidst a sea of Positivists, the other—well, a *sui generis* explorer on the roiling seas of language.

If, in the end, the reader finds he hasn't actually discovered much that Gödel actually *said*, it is perhaps because Goldstein found it difficult to shoehorn what was available—and relevant—into a brief biography, and one more concerned with his ideas than the actual man himself; and, with this end in mind, I enjoyed her presentation from start to finish. I do plan to read Nagel's *Gödel's Proof* , because the idea has always been stimulating for me, even when I only understood it in a very general sense. At a time when Hilbert and Russell, at the apex of the Positivist surge, were attempting to chain mathematics within the bounds of a formal human rationalism, Gödel proved how futile it was for man to think he could tame infinity. This illusion has recurrently manifested itself as a product to be manufactured in the mental workshops, the principal theme of Leszek Ko?akowski in his slim masterpiece *Metaphysical Horror* —though to the genial Pole, the shops themselves must perforce endeavor to continue operating. To finite man the *infinite* is an awesome, disturbing, and chaotic beast, forever mocking human aspirations and advances with its eternities and paradoxes and circularities. We have always been able to intuit it, yet without restraining it and fixing it into place, and the quiet genius showed that this cannot be effected. What implications does this bring to the existence of God, of a Platonic world of abstract ideals, of all that the mind can conjure but never empirically locate? It's a source of endless fascination for me—and, apparently, for Gödel as well; so at least I've got *that* in common with the great man.

Brett says

This book is serviceable in being a readable introduction to Gödel's famous proofs and a general (very general) understanding of the intellectual and historical circumstances within which it grew. While I do not have the capabilities to judge whether she provides a completely faithful representation of Gödel and his proofs, it is within my power to deem her handling of Wittgenstein, whom she spends a great deal of pages discussing, to be sorely unsympathetic, uncharitable, and misrepresentative. Wittgenstein is set up as an intellectual foil against which Gödel prevails, and the story that she recounts is, though not unique within the world of mathematics (or philosophy, for that matter), is highly selective (without acknowledging the fact) and, unfortunately, mischaracterizes that which is not within it's primary purview. One may glean an accurate (though vague) understanding of Gödel from this book, but not, I'm afraid, of the greater intellectual

tradition whence it sprang. And not of Wittgenstein.

Matthew says

Suck it, postmodernists.

Davin says

Well written and a good picture of Godel, his work, philosophy and the times he lived in. There would be more starts up there but for 2 reasons:

1 The book goes through thumbnail sketches of Godel's famous proofs and then a more involved version, but even after the more detailed explanation I still felt like I had only scratched the surface of it. Some of the things asserted about the process of Godel numbering seemed almost magical as a result. This is a tough balancing act for any popular take on technical subjects. (See David Foster Wallace's book on Cantor and Infinity for the same "Great Discoveries" Series if you want read more about the difficulties of writing a book like this.) Still, I wanted a little more. Since these proofs are crux of the book, this was disappointing.

2. The book spends surprising amount of time on Wittgenstein but he seems tangential at best to the story. It's interesting to read about him, but it felt tacked on.

Jeff says

I'm going to reread the sections specifically about Gödel's incompleteness theorems because i'd really like to be able to speak about them without misrepresenting them one of these days. You could call it a New Year resolution if you wanted to.

I don't know how to rate this book because i'm so incapable of rating Goldstein's ability to convey the mathematical ideas. I can say that i thought i was read many sentences more than once ... but in completely different sections of the book, as if the editor & author hadn't noticed something was copied from one section to another rather than moved. Another quibble of mine: intending a *positive* connotation for prolix as a modifier of these theorems, specifically meant to imply that despite the few words needed to write them, they affect an astounding variety of intellectual disciplines.

On the positive side, i actually enjoyed much of the "history" and "biography" bits as they fleshed out the time and places covered by Logicomix.

I'm following Goldstein's implied advice and reading Nagel and Newman's *Gödel's Proof* as soon as it's delivered to my doorstep.

Kyle York says

What a wonderful book. Goldstein not only lays out Godel's famous theorems in relatively understandable terms for the layman (an accomplishment in itself,) but provides an original, funny, and lucid account of the intellectual atmosphere in which these theorems arose. She discussed Godel's relation to the Logical Positivists and Formalists, which sheds great light upon the meaning of his discoveries. She also dispels the postmodernists mythologies about what Godel's theorems mean. In addition, she outlines Godel's relationship with Einstein, both intellectual and personal, which turns out to be rather significant.

Objective topics covered in this book range from the nature of mathematical reality, to the nature of time, to the nature of the mind.

In addition to all this, she gives an account of Godel's personal life and a picture of who he was as a person. The picture that she paints is tragic, warm, and very eccentric. By the end of the book, I found myself as touched by these accounts of Godel's life as by any novel.

Goldstein was the perfect person to write this book-- because of her lucidity in regards to mathematical logic, science, and analytic philosophy, and because of her experience as a novelist and capacity for wit, humor, and sympathy for the human experience.

If you are like me and unfamiliar with but interested in Godel, you will never look at the world exactly the same way after reading this book. I highly recommend it.

(On a side note, I found it interesting that this book was listed under Science/Mathematics and not Philosophy. Telling of the current cultural atmosphere, no?)

Steven Williams says

I may have read this book previously, but I could not remember doing so. This review replaces the very short review I had previously made.

In this book Rebecca Goldstein sets out to explain Kurt Godel's life, including his incompleteness theorems. She first sets the stage in an environmental context, both personal and mathematical. Then comes her explanation of Godel's theorems. And finally, the later stages of his life.

The book starts our interestingly enough with the relationship between Einstein and Godel, or what can be gleamed by the little information that relates to this relationship. It moves on to Godel's early life, his life at university and within the Vienna Circle (a philosophical club of the logical positive school of thought). After this the problems with the foundations of mathematics and its formalism is presented, starting with Frege, moving on to Russell and Whitehead, and finishing up with Hilbert and his formalist program. Then comes Godel's incompleteness theorems. Finally, it covers the responses to his theorems, both his and others', and the latter stages of his life.

The following are some of the comments I made while reading the book. Page numbers are in brackets [] from the W. W. Norton & Company paperback edition from 2005.

[24] "Though one might not guess it from this terse statement [from an *The Encylopedia of Philosophy*s article] of them, the [Godel theorems] . . . are extraordinary for (among other reasons) how *much* they have to say . . . they range far beyond their narrow formal domain [mathematical logic], addressing such vast and messy issues as the nature of truth and knowledge and certainty . . . Godel's theorems have also seemed to have important things to say about what our minds could—and could not—be." (italics hers) I do not think that Godel's theorems have that much to say outside of their domain; although, others certainly seem to think so. And, they say preciously little on the human mind, if anything. Even its effects on mathematics proper is limited. Most mathematicians happily go about their business without a thought about the two theorems.

[26] Goldstein makes a similar claim here: "Godel's theorems, then, appear to be that rarest of rare creatures: mathematical truths that also address themselves—however ambiguously and controversially—to the central questions of the humanities: what is involved in our being human . . . Though there is disagreement about precisely how much, and precisely what, they say, there is no doubt that they say an awful lot and that what they say extends beyond mathematics, certainly into metamathematics and perhaps beyond." At least she hedges her claim here, but what they say about being human is beyond me, except that they were produced by a human mind.

[32] Footnote 6 mentions "Godel's hostility to the theory of evolution" with its "chance and randomness." I think it is somewhat of misnomer that changes in the bases of DNA are random. The changes themselves are not random in a physical sense. This is because these changes have exact causes, such as chemical, ultraviolet radiation, or cosmic rays. The randomness comes in from appearances only, or if like, possibly which base gets mutated.

[39] At the end of a quote from William Barrett's book *Irrational Man* it reads ". . . since mathematics has no self-subsistent reality independent of human activity that mathematician carry on." This goes against everything Godel believed in about mathematics. This is that mathematics has an existence outside the human mind in some sort of Platonic realm.

[139] She characterizes Cantor's continuum hypothesis thusly: "Cantor hypothesized that there is no infinite set that intervenes between the set of natural numbers and the set of real numbers; that is, there no set that has a higher ordinality than the natural numbers and a lower ordinality than the real numbers." This is wrong. It is cardinality, not ordinality that Cantor was talking about. It makes me wonder if she can commit one (big) blunder, could she be committing further blunders when it comes to her description of the incompleteness theorems, like her previously statement that Godel did not use numbers in his proofs [23]. I am not certain here, but is not Godel numbering using numbers? She could have been saying that it can be stated without using numbers rather than the actual proof used no numbers. When I came across the mistake on page 139 I immediately check her acknowledgments. I could not find it was reviewed and commented on by anyone known to be competent in mathematics, while she did consult others for their comments. If she had consulted some one of this caliber she might have avoided this mistake as well as others that may lurk within the book.

[200] It is claimed by John Lucas [and others] that Godel's theorem shows that minds are not machines because no machine could devise Godel's proof. Since Godel himself proved his theorem within a formal system would that not indicate that a computer could be programmed to produce his proof. This may not apply to Turing's uncomputability theorem. While no computer could decide if a particular algorithm would stop, no human could decide this either.

[217] Godel claims mathematical realism on the basis, not only from his own theorem, but from the undecidability of Cantor's continuum hypothesis under the current axioms of set theory and the as yet

unproved Goldbach conjecture. But, I ask: If mathematical truth lies in some Platonic realm, what about mathematical falsities? Would not they have to reside there too? If they did would that not be contradiction.*

[232] In footnote 8 talking about Godel's argument that a dictatorship could arise from the United States Constitution, she states: "Unfortunately, Morgenstern's account, and so all others that derive from it, omits mention of the precise constitutional flaw." I guess I will have to give up the hope that I will ever discovered what Godel thought he saw there.

As far as Goldstein's mathematical explanation of Godel's theorems are concerned, I think she did a fairly good job, but the mistake when explaining Cantor's continuum hypothesis makes me wonder. I thought a far better description was done by Douglas Hofstadter in his *Godel, Escher, Bach*. This being said, her biographical information was informative for me and intriguing. Godel was certainly an interesting character, as well as a very smart man; his proof is quite ingenious. So my overall rating would be mixed. On the proof itself I would call it fair. Depicting the man, Godel, it was real good, and the importance of the theorem outside of mathematics and philosophy of mathematics I could not agree with her coverage, but to be fair she did not take sides as to whose interpretations, if any, might be correct.

If you are interested in Godel's life or are unfamiliar with his theorems this book should be of interest to you. In addition when it comes to how people both in mathematics and without view the theorems you would probably also be interested as well. I would just caution to be a little wary of some of her information.

* I just posted a blog on Mathematics called "Can Mathematics Be Constructed?" which partially includes a more fuller discussion of mathematical realism @ https://aquestionersjourney.wordpress...

Keith Akers says

This is a great book to learn more about "Goedel's Proof" (actually two proofs, or actually three proofs if you count his Ph. D. thesis on predicate calculus). The incompleteness of mathematics is an astounding concept -- it's so astounding, that you are left breathless, not even sure what the whole thing means. Does this mean that God exists? Actually, Goedel himself toyed with variations of the ontological proof. The incompleteness of mathematics is just really hard to wrap your brain around; it's not just understanding the proof that is hard, but just figuring out What It All Means. Goedel didn't know (or didn't tell us), and we're still trying to figure it out today. There is so much more to reality than science and logic can explain, and we don't need metaphysics to see this -- all we need, actually, is mathematics. Go Plato! This is what the author conveys so well.

I read this book and "A World Without Time" by Palle Yourgrau at the same time. They are both quite good books and, as written by academic philosophers, generally mitigate my general negative opinion of academic philosophy. If you are interested in Goedel's ideas about "time travel" then read the book by Palle Yourgrau. If you are more interested in the proof itself, read this book, which goes into more detail. But really you should read both, because unlike some philosophers from Austria that I could name (ahem! cough, cough!), they actually take the time to try to explain things to you.

What I liked most about this book was the anecdotes about Goedel and those around him. She gives a fairly complete account of a really interesting anecdote, which I will have to blog about at some point, concerning Goedel's becoming an American citizen. Goedel indignantly protested that the constitution had a contradiction in it that would allow a dictator to take over! Also, the accounts of the personal relationships

between the people in the Vienna Circle really helped me to understand the very different ideas which they and Goedel were respectively trying to articulate.

The main negative of the book, which is also paradoxically a strong positive, is its treatment of Wittgenstein. This book is fair towards both Wittgenstein and Goedel, but makes a lot more sense out of Wittgenstein than I think he deserves. I will spare you the comparisons with livestock agriculture and the waste products thereof. What bothers me about Wittgenstein is his condescension and failure to explain things -- being deliberately enigmatic. Yeah, sure, he might be a genius, but why should I read someone who clearly doesn't want to talk to me, or apparently anyone else? This seems like the philosophical equivalent of the medieval practice of self-flagellation.

On the other hand, the author actually makes more sense out of Wittgenstein than anyone else I've heard, and the anecdotes about Wittgenstein are helpful in describing the intellectual scene around the Vienna Circle. So paradoxically, I now feel more sympathy with Wittgenstein than I did before. But not agreement with W. -- I'm with Goedel on this one.

Wittgenstein rejected Goedel's proof, and this book makes it fairly clear that Wittgenstein never really understood it and somehow wanted to dodge the conclusions with condescending statements about having, somehow, transcended it all. But what is more amazing than that Wittgenstein rejected Goedel, was that Goedel, a master logician, who should be the hero of all the "analytic" philosophers in the U. S. A. -- since he proved something really significant about logic and mathematics that rivals or exceeds Aristotle -- is hardly even regarded as a philosopher at all, a fact which reveals the shallowness of modern academic philosophy.

I found the explanation of "Goedel's proof" of the incompleteness of mathematics (actually two proofs, as it turns out) to be quite accessible. However, I should warn you, I went to graduate school in philosophy, and took one logic class in which Goedel's proof was discussed. Unfortunately, it was not the proof that I wanted to learn about, the incompleteness of mathematics, but the completeness and consistency of what the author calls "limpid logic," a nice turn of phrase. I think that this is going to be over a lot of people's heads. But even if it is, it will at least convey what Goedel's proof means, which is actually in some ways harder than following the formal proof itself, although that's hard enough.

Matt says

I've always been fascinated by Kurt Gödel and his incompleteness theorems. While Douglas Hofstadter did a fine job in explaining the latter in his book *Gödel, Escher, Bach*, and also in a video lecture, there's hardly any biographical/personal information about the human behind the mathematician here to be found. That's where Rebecca Goldstein jumps in. Her book focuses on the life of the "greatest logician since Aristotle". About his time at the Vienna Circle (a.k.a. the Schlick-Group) in the late 1920s, the emigration to Princeton (the Institute for Advanced Study), where Gödel became friends with Albert Einstein, and finally his personal incompleteness and his tragic death, apparently brought on by self starvation in 1978.

There is, of course, a chapter devoted to Gödel's proof of the incompleteness of formal systems, which is not entirely without mathematics and formulas. The proof itself is rather simplified and no great mathematical knowledge is required. Logical understanding is very helpful, however!

As opposed to most of the participants in the Viennese circle, Gödel was not a positivist, but rather held it with Plato: He had an axiom by which he looked at the world: nothing that happens in it is due to accident or stupidity. Gödel believed in an abstract reality, and "that the truths of mathematics are independent of any human activities, such as the construction of formal systems — with their axioms, definitions, rules of inference, and proofs." The positivists, on the other hand, believed in the creation of the (meta-) mathematical reality by man alone. Everything outside this reality, all meta-mathematics, was meaningless and of no importance to them. Since Gödel also acted in this circle of positivists, there was reason for many to believe that his proof of incompleteness was a success story of positivism, but, according to Goldstein, "could not be further from the truth."

For me the most exciting topic was the confrontation of Gödel and Ludwig Wittgenstein, who was venerated by the Viennese circle in an almost mystical way.

Wittgenstein's *Tractatus Logico-Philosophicus* was apparently read and read again in the circle for months, as if it were a holy book. Gödel never acknowledged Wittgenstein's work, and Wittgenstein was "adamant in denying the possibility of a proof such as Gödel's." The characters of the two could not be more different. Ironically, however, one can conceive the final statement of the *Tractatus* as a kind of incompleteness theorem: "Whereof one cannot speak, thereof one must be silent." Unfortunately, Gödel was anything but ironically inclined, and perhaps he did not see this, so that one can almost speak of a meta-irony here.

Gödel's other important relationship was the warm and close friendship with Albert Einstein. The two of them were very dissimilar (Einstein was 27 years older than Gödel), but they understood each other well and appreciated each other extremely. Einstein confessed that "he only went to his office to have the privilege of walking home each day with the logician, the two great minds of the twentieth century able to share, at least for a while, their intellectual exile with one another." After Einstein's death in 1955 Gödel became very lonely indeed. The final chapter shows the incessant descent of this brilliant thinker quite impressively, as I find.

Apart from the formal parts of the third chapter, this is a very easy to grasp and recommendable reading for all those who want to make themselves more familiar epistemology, history of science, meta-mathematics and logic.

Rossdavidh says

David Foster Wallace (RIP) once referred to Kurt Goedel, the subject of this book, as mathematics' Prince of Darkness. Douglas Hofstadter gave his Incompleteness Theorems (1 and 2) a central role in his book "Goedel, Escher, Bach". Goedel's ideas are so central to 20th century thinking that it is likely that Einstein (for many years until his death Goedel's closest friend) was the only person he ever met who he was not, eventually, to become more famous and influential than (for example Wittgenstein, a much more famous thinker than Goedel in his time and a major player in this book's story, is not nearly so influential now).

For all that, we know relatively little about Goedel's life. Rebecca Goldstein attempts here to fill in the gaps as best we can. Her basic thesis, which she does a fair job of demonstrating, is that Goedel's famous

theorems, in his opinion, mean roughly the opposite of what most people took them to mean.

To summarize greatly, Goedel's Theorems state that every sufficiently powerful system of arithmetic thought contains well-formed statements that are true, but unprovable. In addition, no sufficiently powerful system of arithmetic thought can prove its own consistency. To put it another way, systems of arithmetic thought can be either:
1) so crippled that they cannot be used for much because they can't say much
2) able to say a lot, but some of it is unable to be proved (or disproved), and anyway cannot prove that they are consistent

I am, of course, grotesquely abbreviating, and therefore leaving out much which is necessary. But then, the summary of Goedel's theorems may perhaps have been more influential than the full content.

Goedel was a young man in Vienna between the world wars, a time of enormous intellectual ferment. The dominant thinking of the time was Logical Positivism, and more generally the rejection of Platonic ideals.

Goldstein asserts that Goedel was himself a devoted (even devout) Platonist, who saw his own work as demonstrating that there is a realm of absolute truth, which exists independent of any (necessarily flawed) system of thought we use to get at it. This ran counter to much of 20th century thought, which saw all truths as relative.

One wonders if this wasn't all simply a rejection of "absolute", because the term "absolutism" had become associated with a political system in which all power is held by the central executive. Einstein's theory of Relativity actually takes as its starting point the tenet that the speed of light in a vacuum is absolute. What would its reception have been if it had been called the Theory of Absolutism? More to the point, there was never any chance of it being interpreted that way. It was similar with Goedel's Theorems. Goedel saw them as proving that Platonic ideals are more fundamental and important than human-created systems of thought. Almost all of the brightest minds of Goedel's time took his work to mean much the opposite, that all systems are incomplete and therefore absolute truth cannot exist.

The first half of the book is a fascinating look at a very private man, whose behavior almost caricatures the stereotypical absent-minded professor. Einstein may have been the only person who was able to relate to Goedel at all levels (both were German speakers who were driven from Europe by fascism, became famous for theoretical work cited far beyond its intended field, and ended their years at the Institute for Advanced Study in Princeton). After Einstein's death, Goedel became increasingly isolated, and eventually paranoid, ending his life in a state of near-starvation brought on by a paranoid fear of poisoning.

In the end, what does Goldstein's book tell us about Goedel that we didn't know before? I think it tells us that the way in which even the most brilliant discoveries and original thinking are interpreted is controlled as much by the zeitgeist into which it emerges, as by the intentions of the creator or even the nature of the discovery itself. It reminds us that being a genius is no protection against being fatally neurotic. And it points out to us that thinking as creative, original, and far-reaching as Goedel's may take a century or more for the rest of the world to fully come to terms with. This book brings us one step closer to doing that.

Collin Winter says

"Incompleteness" is less about Gödel's actual incompleteness theorems -- the proofs and their specific

mathematical legacy -- than it is about the philosophical environment those theorems were developed in. Put another way, this is a book less about Gödel and more about Gödel and Wittgenstein, or perhaps more accurately, about Wittgenstein and Gödel.

This is a book that prefers to tell rather than show: Goldstein spends 160 pages telling the reader how amazing and important and revolutionary Gödel's proofs were before she ever unpacks the proofs themselves. Once she does set to explaining them, she makes the same mistake many authors attempting to popularize math and science make by simplifying too much and skipping steps in the name of not overwhelming the reader. What's left is paradoxically difficult to follow, as it is riven with caveats like "we won't be rigorous" and "this isn't really what Gödel did".

I would not recommend this book to anyone seeking to learn more about Gödel's work on incompleteness. However, if you're looking for a book about Wittgenstein, Gödel, and philosophical circles in 1920s and 30s Vienna, this may be the book for you.

Megan Lawson says

I very much enjoyed the second half of this book - in which there was a discussion (though I wish more mathematically and logically minded) of Godel's Incompleteness Theorems as well as stories of his life and interactions at Princeton.

However I did not enjoy the first half of the book much at all. It felt like it was a 150 page set up to what the philosophical world was like that Godel was walking into. I didn't need that and didn't feel like it did much to move along my understanding of Godel and his work. Godel was sorely neglected in the first part of the book about his discoveries.

Domhnall says

This book is succinct, accessible and well constructed. Godel's Incompleteness Theorems are so significant in the history of ideas that it is essential to have a decent grasp of just what they are and why they mattered and this book supplies that need for general readers. It gives a good enough explanation of Godel's findings and deals with the reactions of other major names to his theories, which sheds interesting light on their work too.

We need to grasp Godel's theories accurately because we need to be aware of the way others not only use but also misrepresent them. For example, William Barrett, in a famous book which I greatly enjoyed: Irrational Man: A Study in Existentialist Philosophy, 1962, concluded from his account of Godel that "mathematics has no self-subsistent reality independent of the human activity that mathematicians carry on." Godel believed pretty much the direct opposite of this fashionable assertion.

This is a very widespread problem. Goldstein gives another example in the way many serious minded people assume from Einstein's Theory of Relativity that there is no absolute reality, since everything depends on the subjective point of view of an observer. On the contrary, Einstein was quite satisfied that the purpose of science is to obtain an accurate account of a reality that is authentic and independent of any observer.

How is the general reader to avoid being sucked into false and sometimes dishonest positions based on misrepresentation? Paradox plays a major role in the story of this book. For a general reader like myself, one paradox might arise if we are asked to rely on Goldstein as an authority and to reject the opinions of other authorities, not least Wittgenstein. The solution cannot possibly be to elevate her in that way - instead, she invites us to join the debate about Godel and stop observing passively from the sidelines. Godel will start to be important to us when we start using his ideas in our own thinking and when we can do that in a credible way: based on understanding and not preconceptions.