



Meta Math!: The Quest for Omega

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Gregory Chaitin, one of the world's foremost mathematicians, leads us on a spellbinding journey, illuminating the process by which he arrived at his groundbreaking theory.

Chaitin's revolutionary discovery, the Omega number, is an exquisitely complex representation of unknowability in mathematics. His investigations shed light on what we can ultimately know about the universe and the very nature of life. In an infectious and enthusiastic narrative, Chaitin delineates the specific intellectual and intuitive steps he took toward the discovery. He takes us to the very frontiers of scientific thinking, and helps us to appreciate the art—and the sheer beauty—in the science of math.

Meta Math!: The Quest for Omega Details

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From Reader Review Meta Math!: The Quest for Omega for online ebook

Roberta says

I skimmed through main part of this book, skipping over much of the math and exclamation points. The math was frequently beyond my limited math education, but I did understand enough to appreciate his enthusiasm for elegance, beauty, and awe of the limitations of knowledge, seen in the concept of unsolvability.

The text of the first part of the book was often tedious, but I was enthralled with the appendices. They described the fascinating philosophy of mathematics, enthusiasms my husband had often shared and tried to promote among his colleagues. I wish the book could be edited for readers with little background in math, so that the first part was compressed (like a good program) as an introduction for the appendices.

Alex Lee says

Understandably Chaitin's enthusiasm comes at us in full force from the very beginning. It's a distraction, but it's also an integral part of how he considers his subject.

Chaitin tries to make a careful argument many times about his subject, but it's difficult because he wastes no words in constructing the bits of reasoning he lays out for us. He nearly takes an interdisciplinary approach in order to approach the same structure from more than one point of view -- and I find it to be successful. I realize not all readers would appreciate it, but coming to the same point from many angles (while harder) does give a deeper appreciation of the difference he is trying to highlight.

Mathematics is about difference. The family of functions are different kinds of differentiations, each of which is a different "kind" of qualifying. The challenge of meta-mathematics is to understand what each class means. Each class is a way of quantifying difference, a way of navigating the space between 0 and the infinite. What is so striking about Omega and Godelian Incompleteness is that Chaitin found a way to get very close to the unnameable. Godelian Incompleteness challenges the fundamental assumption of math that being countable means being included -- the implication being that we can never have full continuity.

In that sense, when Chaitin includes the limits of Turing halting, he rightly grasps that most real numbers are in a sense completely imaginary since they are truly incalculable.

While this book is somewhat scattered in its approach, its insight is bubbling out, barely contained in his enthusiasm. It's true that he could have taken more time to take longer to explain things but I feel like that distance would have been really unnecessary and pointless. There is so much to admire in this work. Chaitin is a firm believer in structure. He pulls off all the weeds from our thinking to highlight what is essential, and that alone is well worth the read, assuming of course, that you are willing to run hard to keep up.

Charles says

The point of this book is to define and state the significance of a real number called omega (Ω). It is related

to the halting probability and is defined on page 129 in the following way:

Given the set of all possible computer programs you select one at random (p) and run it on a specific computer. Each time the computer requests the next bit of the program, you flip a fair coin to generate it. The computer then must decide by itself when to stop reading the program. You sum for each program that halts the probability of getting precisely that program by chance. In terms of a formula, it is

$$\Omega = \sum_{\text{program } p \text{ halts}} 2^{-(\text{size in bits of } p)}$$

Since the definition is based on a process halting, it is necessary to mention Hilbert's stating of the halting problem and Turing's brilliant solution. Cantor's work on the different levels of infinity and the contributions of Kurt Gödel in the area of what can be proven are also mentioned.

The path from the opening statement to the definition of Ω and the mention of its significance is a convoluted one. There is a section on computer programming and the language used in the explanation is LISP. At times Chaitin descends into a lot of I/me discussion, not to the point of being insufferable, but certainly more than is necessary.

One point of specific historical interest appears in chapter three, where the Leibniz versus Newton debate over the origin of calculus is rekindled. According to Chaitin "Leibniz was such an elevated soul ...," "... Leibniz was good at everything," and "In fact you can only really appreciate Leibniz if you are at his level." Whereas, Newton is portrayed as a dark man that derived joy from destroying people. Needless to say there is historical disagreement over this point.

This is a book of popular mathematics that is designed to prove the existence and significance of the halting probability. It is different from most other popular mathematics books in that it is not as linear in organization, starting from one point and following a well defined path to the conclusion. This will make it difficult for the non-technical person to understand.

Maurizio Codogno says

Gregory Chaitin si definisce un matematico quasi-empirista, filosofeggiante sulle orme di Leibnitz. Non crede troppo, se non per la parte filosofica. In questo libro più che di matematica si parla di metamatematica, e l'unica parte che può essere vista come empirista è data dal fatto che le dimostrazioni sono generalmente evitate, e Chaitin preferisce fare dei bei riquadroni manco avesse da fare dei lucidi. Il sottotitolo del libro, "Alla ricerca di Omega", è dovuto al fatto che il culmine del libro è la definizione di Ω , il numero che codifica la probabilità che un programma scelto a caso e fatto girare con input casuale su un computer prefissato termini. Ω ha un valore ben preciso per ogni computer dato, ma è impossibile sapere quale, e non sappiamo nemmeno quanto possiamo approssimarla: paradossalmente, pur essendo perfettamente definito, è anche perfettamente casuale. L'approccio di Chaitin è non convenzionale, riprendendo molti risultati del XX secolo in chiave informatica; a parte l'astrattezza, che uno si può aspettare, non mi è piaciuto per nulla lo stile di scrittura, troppo enfatico e pieno di parole e frasi in neretto, ma soprattutto di punti esclamativi. Si vede che io sono un matematico più sobrio.

Colin says

Amazingly bad. Certainly the worst book on any technical subject I've ever read - try to imagine the book a Jack Russel Terrier would write about its favorite tennis ball. Enthusiasm for a technical subject is important, using ten exclamation points a page (at times every sentence in a paragraph!) is Reader Abuse. **The flow of every page is broken up and littered with distractingly bolded sentences, unnecessary subheadings, and redundant information boxes.**

Chaitin takes every opportunity to remind readers of his contributions to the world of mathematics and the importance of his Omega discovery - it's clearly a symptom of his passion for the subject, but it comes across as self-congratulatory and unprofessional.

Several times he compares the process of solving mathematical equations to making love to a woman. It's creepy.

So, yeah. Terrible.

Michael says

This book holds great treasures if you can handle a bit of high school level math. Deep insights into the limits of mathematics, logic, and computing and what they mean for the future of science.

Ben says

Chaitin has a way of making his conclusions sound less than earthshaking. As far as I can see, the main point of this book is that we can't expect to get something truly complex out of something simple. I think I got a lot out of this book though, because Chaitin also points out a number of less obvious implications for math, computer science, and physics. Its hard to tell just how well presented the specifics are, because I don't have a background in computer science. This combined with a highly informal (though readable) delivery and some unembarrassed promotion of the author's own work to leave me wondering whether I had just waded through a lot of half-baked filler to get to a few good ideas. I can't complain though, at being stimulated to take up set theory and physics in this new light.

Luca Mauri says

Questo libro commette due tra i peggiori errori possibili nella divulgazione: non spiega *niente* e l'autore inserisce continuamente note personali che non sono collegate alla sua supposta scoperta. Il libro dovrebbe condurre il lettore alla scoperta di Omega, peccato che prima di introdurre il concetto il libro sia già finito, nel mezzo ci sono una serie di concetti che spaziano dalla matematica alla logica all'informatica alla biologia che sono debolmente legati.

L'autore fa diverse dimostrazioni nel libro, ma evidentemente gli sfugge il fatto che una *dimostrazione* ??

molto diversa da una *spiegazione* ed essendo questo un libro divulgativo bisognerebbe dedicarsi alla seconda, pi?? che alla prima. Ne risulta quindi che il lettore con una preparazione media in matematica e logica capisca ben poco di quello che ?? scritto nel testo.

All'interno della narrazione c'?? anche una breve introduzione (del tutto fuori luogo) al linguaggio di programmazione LISP che l'autore dice di avere derivato pi?? e pi?? volte, anche se di questo non c'?? traccia ufficiale al di fuori del testo stesso.

Visto che l'autore ?? impiegato presso i laboratori di ricerca dell'IBM, ci sono anche delle digressioni sulla ingegneria del software che per?? presentano idee del tutto arbitrarie e superficiali.

Dulcis in fundo, una raccolta di poesie e di referenze non solo bibliografiche, ma anche teatrali, un vero guazzabuglio.

Personalmente lo trovo un libro estremamente parziale e complesso che solo un estimatore dell'autore prima ancora che della materia potrebbe trovare attraente.

L'edizione rimane invariata anche per questa ennesima uscita della Biblioteca Scientifica Adelphi, come al solito il prezzo ?? elevato.

WarpDrive says

“Omega”, a deceptively simple concept, but pregnant with deep implications in many realms of human inquiry: in layman terms, this is a real number expressing the “halting probability” that a randomly constructed program will halt after a finite number of processing steps.

At first glance, this seems just a technical tidbit with limited applicability, and of interest only to computer sciences practitioners. In reality the extraordinary features of such number, in conjunction with the important findings in algorithmic information theory highlighted in this book, deeply influence and raise significant challenges in areas such as:

- the expressive power, informational contents, and necessary limitation of any formal axiomatic system (FAS). As such, these concepts deeply impacts the very foundations of mathematics, and they do so at least to the same extent as Gödel's incompleteness theorems
- important mathematical issues such as the computability of Diophantine equations (the famous Hilbert's 10th problem)
- AI and algorithmic information theory (including issues such as algorithmic irreducibility, computability, complexity, and the Turing's halting problem)
- mathematical physics, in relation to issues such as the “fundamental length” (is spacetime continuous or discrete?)

It is important to highlight that we should not adopt an overly-restrictive nor technologically-biased definition of “program” or “computability”. First and foremost, these are fundamental logical/mathematical concepts that play a foundational role in information theory and in all related scientific/mathematical subject matters (with also epistemological implications).

It is quite remarkable how so many of the above issues are interconnected with each other, and to a surprising extent; the “information theory”-driven, multidisciplinary approach followed by Chaitin in his book, brilliantly exposing such deep and surprising inter-connectedness, is very intriguing and refreshing. This approach, I must disclaim, resonates with my personal outlook at many levels: I believe that reality, at its deepest and most fundamental level, is constituted by nothing but “information” organized in accordance with patterns defined by “logical/mathematical” structures, and evolving through information-processing “computational” processes associated with such underlying structures. The digital ontology of Wheeler's “it from bit” is something I am quite receptive to; and information theory, within such perspective, naturally plays an important function.

I must dissociate myself, though, from what I think is the overly-optimistic view of Chaitin in pushing for what has been called “digital philosophy”, an approach strongly influenced by Turing’s computational models, according to which all information must be digital in nature (must have a digital means of representation/processing). While I have sympathy towards this view, I think that the issue is more complex than presented by Chaitin, and that he neglects to take into account the significant price that has to be paid if we assume that reality is fundamentally discrete (I discuss this point in more detail later).

Chaitin’s book does not start immediately with a direct treatment of “omega”, as this concept is first properly positioned within a wider context: the book presents a progression of pre-requisite concepts including computability, Formal Axiomatic Systems (FAS), incompleteness, and fundamentals of algorithmic information theory. After all the above pre-requisite concepts are treated by the author, the proper intellectual framework has been built for a direct treatment of the concept of “omega”, finally explained by the author in all of its glory.

Let me now get into more detail, to provide some flavour of the many fascinating issues treated by Chaitin in this provocative and riveting book:

- The preface contains some discussion about the nature of mathematics and its relationship with the physical world: mathematics is seen as a way of expressing or characterizing structure, and the Universe is seen as built out of such structures. It seems to me that the author adopts a view similar to Shapiro’s ontological structural realism (view to which I feel close), but he does not elaborate this position in much further detail. I do agree with his view that there is an aspect of historical contingency in the way mathematical thought developed through the millennia, and that it is very possible that, in a different context, a different “type” of mathematics might have evolved. This does not contradict, *per se*, a Neo-Platonic view of mathematics; it just implies that human mathematics, as historically developed, only selected a particular subset of existing mathematical structures.
- In the introduction, the important philosophical and mathematical conceptual role played by the notion of computer and computability, which have provoked a paradigm shift and ushered the introduction of digital philosophy, are also briefly treated. Chaitin is clearly an enthusiastic follower of its tenets – to him, “*you understand something only if you can program it*”
- In chapter 2 we start getting into the heart of the subject: the author uses the example of the distribution of prime numbers to introduce the concept of randomness: the local distribution of primes shows no apparent order, even though we can calculate them one by one. The study of the behaviour of the primes, and number theory in general, are extremely fascinating topics, not just for their implications to the rest of mathematics (just as an example: due to the uniqueness of the prime factorization of integers, prime numbers can be seen as the fundamental building block of the whole integer number system), and for their practical applications but also because, even with apparently simple and innocuous questions, we get right away at the very borders of current human understanding: for example nobody has been able to prove that there are infinitely many “twin” primes (consecutive odd primes separated by just one even number). There are many open questions about prime numbers, which are (somebody stated once) “to mathematicians as the elements are to chemistry, as elementary particles are to physicians, as nucleotides are to geneticists”.
- While discussing the magic of the primes, the author explains and compares three different proofs of the theorem that there are infinitely many primes: the famous Euclid’s proof, the more complex but beautiful Euler’s proof leading to the Euler’s product formula (*the latter being a special case of the notorious Riemann’s zeta function, whose properties are connected with the statistical distribution of primes*), and finally the incredibly simple and concise Chaitin’s proof, purely based on basic considerations of complexity.
- By briefly highlighting the unique magic of the primes, the author therefore manages quite brilliantly to introduce to the reader elementary concepts of randomness and complexity. The author does not just use the properties of the primes as an excuse to introduce such concepts: he also uses a comparison between these three proofs to express his ideas about the nature of mathematical proof: I like Chaitin’s idea that, while a

false statement has no proof, a true statement will have multiple proofs and can therefore be approached in different ways, some more fruitful and informative than others. “*Math is the music of reason, and some proofs sound like jazz, others sound like a fugue*”, Chaitin states in a quaintly cute way.

I personally think that the fundamental reason for such multiplicity of proof is that mathematical facts are never isolated, but they are woven into a vast network of multiple interconnections, of which we human have barely some visibility of only an extremely small subset. What comes to my mind is the example of the solution to the (in)famous Fermat's Last Theorem, an amazing achievement reached by studying mathematical objects (such as elliptic curves and modular forms) that seemed completely unrelated to the problem, but that had in reality deep hidden connections with it. Oftentimes, illuminating a different aspect of the problem reveals unexpected connections leading to unexplored and fascinating directions.

- The next sections are dedicated to the subject of “incompleteness”, a concept that has been frequently misunderstood. We are dealing with the famous “Godel's incompleteness theorems”, initially proven by Godel himself and subsequently demonstrated by Turing with an alternative approach based on purely computational considerations. In layman's terms, focusing on the first theorem, Godel's wonderful meta-mathematical result states that any finite, consistent formal axiomatic system that is sufficiently powerful (*within which a certain amount of elementary arithmetic operations can be carried out*) is necessarily incomplete: there are statements in its language which can neither be proved nor disproved within it. This proves that mathematics is informationally infinitely rich, and that there is no finite axiomatic system that can exhaust it. The proof of Godel's theorems is notoriously complex and the author expresses his preference towards Turing's approach. Chaitin's own approach and proof to this issue, based on the concept of “omega”, is explained in detail in the last chapters of the book

- The author then explains the concept of FAS (Formal Axiomatic System) which is essentially a set of axioms and rules of inference expressed in a specific formal language, inclusive of a proof-generating/checking algorithm; such algorithm can in principle be run against the axioms of the associated FAS, to automatically generate all the resulting mathematical assertions (theorems, if you like) by using symbolic logic in accordance with the defined rules of inference of the FAS. From this perspective, a specific FAS can be associated with the automated algorithmic generation a “computably enumerable” set of mathematical assertions.

- Next comes a brief discussion on the famous Turing's halting problem. Finally, the important connection between incompleteness and the halting problem is highlighted: Turing demonstrated that the halting problem implies incompleteness, in other words that uncomputability implies incompleteness. This is another proof of the importance of algorithmic information theory to the definition of the foundations of mathematics, and of the deep link between these two subject matters. Chaitin goes one step further, and he demonstrate later in his book that “randomness” implies incompleteness. But regardless of the approach, it all points to the conclusion that Hilbert's goal for one single FAS for all mathematics is impossible – mathematics is infinite.

- In the next section, another surprising link is highlighted by the author: the link between exponential Diophantine equations (algebraic equations in which everything is an integer, and where the only allowed operations are addition, multiplication and exponentiation), the Universal Turing machine (*UTM: loosely defined as equivalent to a general-purpose programmable computer*), and Turing's halting problem. The surprising connection is that there is one unique, long (20,000 unknowns!) exponential Diophantine equation (*aptly called “universal Diophantine equation”*) that can perform the same calculations as a UTM! Coincidence? Very unlikely – we are probably witnessing a deep interconnection between the integer field and the very essence of computation. The existence of such monster able to emulate a UTM, by the way, also means that the unsolvability of Turing's halting problem implies the unsolvability of Hilbert 10th problem (*computability of Diophantine equations*).

We can clearly see that objects that, at first glance, appear to have no connections whatsoever, demonstrate in fact surprising commonalities, due to their sharing of the same information theoretical structure

- We are now in Chapter 3, mostly dedicated to some of the main concepts of algorithmic information

theory. Chaitin's digital-philosophical approach is as evident as ever: "you combine 0's and 1's, and you get everything" - in other words, according to Chaitin, binary information represented by the combinatorial possibilities of 0 and 1 can exhaust the informational contents of the universe. This paradigm is adopted across the board, for example in his utterly fascinating definition of what "understanding" and what "a scientific theory" ultimately mean: the compression of the apparently chaotic, informationally-bloated variety of physical phenomena into a significantly reduced "program" (set of physical laws) that contains in a succinct, concise, informationally efficient but rich manner, all the necessary information to fully account for such multiplicity. The greater the degree of experimental information compression into an efficiently defined law, the better such law, the deeper the understanding of the associated phenomena. Think about the expressive power of the Einstein field equation of general relativity, or the incredible law-generating power of the Euler-Lagrange equation.

"Irreducibility" then means, following this concept, that the underlying data can't be compressed into a physical law, in other words that there is no pattern or structure that allows for such informational compression. The underlying concepts are not dissimilar to the information compression process that is accomplished by standard software that manages digital pictures/videos.

The same applies to any FAS: associated with it there is the collection of all theorems that can be generated by it. In a sense, each FAS already contains, within it, all associated theorems that can be generated from it – from an information management perspective, it is just an extremely efficient way to minimally codify the multitude of associated theorems.

- From the above, the general concepts of "complexity" (*the size of the smallest program required to codify the system being analyzed - this is essentially the Kolmogorov's definition*), and "irreducibility/randomness" (*there is no program smaller than the set of data representing the associated system*), emerge quite naturally. Chaitin also takes the opportunity to make a fascinating detour into the informational complexity of biological systems.

- Chapter 4 and 5 get deeper into the main tenets of digital philosophy, and contain a sustained attack against the real number system (and on the continuum). Everybody who is familiar with Chaitin knows that this is one of his personal obsessions, as the very existence of infinite-precision numbers that are not computable and that can't be compressed algorithmically (therefore containing infinite information) presents a real challenge to the very foundations of any digital philosophy.

The vast majority of reals are "non-computable" and "random" (*computable numbers can be computed to within any desired precision by a finite, terminating algorithm; random numbers are numbers whose complexity of their first N bits grows with N*), as their cardinality of such is the same as the set of all reals! Such reals, actually, are not just un-computable: the large majority of them are also un-nameable (*they can't be defined, or referred to, constructively or not, within any FAS nor within any formal language*). The probability to pick such quite an unmanageable real is actually 1, as opposed to a probability 0 to pick a computable real, as easily demonstrated by Chaitin using Lebesgue measure theory.

- Chaitin then uses these results to wonder about numbers that can't be constructed/calculated, nor even referred to/named. He also highlights that no finite FAS can ever determine infinite many bits of an uncomputable real, and refers to physical arguments (such as Heisenberg's indetermination) to challenge the physical relevance of the very concept of continuum. This brings Chaitin to a wholesome rejection of the continuum from a mathematical/physical perspective.

While I am sympathetic to such views, I must say however that the ultimate discreteness of spacetime and of its underlying mathematical structure presents issues that he does not address:

1. The continuity of calculus is buried deep in standard mathematical physics. Concepts such as velocity and acceleration as derivatives depend on the concept of continuity.
2. Any geometry that purports to describe physical space and which relies on a line segment of aleph-zero cardinality (same cardinality as the computable numbers), inevitably leads to issues such as the fact that countable additivity ceases to hold at the most fundamental level
3. If we assume that the time evolution of any system is discrete, the applicability of differential equations

become an issue; they have to be substituted by difference equations

4. The famous “Weyl's tile argument” highlights that discretization of space, for example, implies a violation of Pythagoras theorem

5. A discrete spacetime model is incompatible with the existence of some continuous physical symmetries (such as rotational, translational and Lorentz symmetry), and it can break the principle of causality. We need also to consider that, according to Noether's theorem, continuous symmetries are associated with conservation of specific quantities (time translation symmetry gives conservation of energy, for example)

6. Many modern physical theories (such as relativity) are inherently “continuous”

So, while I think that the continuum is a nonphysical idealization, and that ultimately spacetime must have some sort of discrete structure, I think that the open issues posed by a discrete structure are significant.

Maybe the whole question is ill-posed: simply, when going below a threshold such as the Planck's length, the whole concept of distance and of the discrete/continuous dichotomy, and of spacetime itself, just stop to make sense and have to be replaced by other concepts.

- The final part of the book is dedicated to the “omega” constant, the completely irreducible/ random real number representing the halting probability (i.e. that any randomly chosen “program” will ever stop).

Considering all the results in the previous chapter, it is easily seen that any FAS can only determine as many bits of omega as the complexity of the FAS itself. This is an extremely strong incompleteness result, which means that the bits of omega are logically irreducible - they are atomic mathematical facts that can't be derived from simpler axioms. This proves that maths contains irreducible information, of which omega is the prime example.

- The author also explains how omega can be represented by a particular Diophantine equation , and how omega even encodes results of the halting problem. Deep and surprising links, again. I don't have space here to get into more details about this fascinating constant, but it is important to highlight how this constant appears to be at the crossroads of many issues of computational and informational complexity.

- There are actually many other issues addressed in this book (*such as Chaitin's brilliant idea of a “quasi-empirical” approach to maths, and his push for an effort to consider the current axiomatic system just a starting point, something that needs to be considered flexibly, and enriched with new axioms wherever advisable*), but again I can't get into more detail because of space limitations.

To conclude, this is a fascinating book about many fascinating topics. The only issues are the writing style (occasionally confusing and with not enough detail, and often a bit too self-celebratory), and some significant hand-waving in some areas. However this is a very interesting and thought-provoking book overall, well deserving of a 4 star rating.

Abhaga says

Reading this book is like hearing to an overexcited person who just cannot get enough of himself. Very self indulgent, Chaitin will recount random facts from his life that have no connection to topic at hand. He will remind you every few paragraphs how beautiful his results are and how much he is proud of them. He will go on tangents which should have no place in a small expository book like this. And he is not good at explaining things. To him, "that is all there is to it".

But having said that, he is intellectually bold and the ideas being discussed are very interesting. Simply speaking, he approaches Godel's incompleteness theorem from a computer science perspective, making it a little more intuitive in the process. Importance of his ideas is well established. But what is also interesting is

how he interprets his work and what conclusions he draws about the nature of physical world from them. After having read about the hesitation of mathematicians regarding imaginary numbers, it is particularly interesting to read arguments against "real numbers"!

I read a preprint available from arxiv.org repository and not the final published book. Perhaps the published version is better edited and does not have some of these shortcomings. A better book exploring these ideas would certainly be useful.

Hayden says

So far I have read 18 pages and the author referred to solving a math problem as having a sexual orgasm and I believed referred to a number or algorithm as an objectified woman. I can't believe I am the only one mentioning how bizarre these phrases were, among others. Not looking forward to any more of his comparisons. I also agree that the book needed better editing given the initial chapters.

Update: page 24, "if we all loved the same woman it would be a disaster. Page 29, there was a feminine component, in allowing my hypersensitive intuition to sense a delicate new truth..." .

This guy is ridiculous in all regards. Bring on the content.

vs says

While the material is interesting, this book desperately needed a good copy editor.

Alecsphys says

I have to admit that this book is really written in an ugly way from a stylistic point of view. Often it seems that the author is speaking and not writing. To much informal. The content is really interesting, but it could be written in a more clean and concise form. What the author calls demonstrations are not really that but simple explanations. The typographical choices are not so good for me too. Some visions of the math and science in general are not fitting mine, others yes. The good point of reading this book is opening my mind on the existence of interesting topics that I was not aware and so stimulating new reading.

David Rim says

I'm not sure how I feel about the Quest for Omega. On the one hand its interesting in the sense that so many mathematical fields are coming together under the auspices of information / computational theory. On the other, this is weirdly unbalanced. There are really difficult concepts that are totally glossed over, and really simple concepts that are delved into. Im not being pretentious, but diophantine equations are pretty much passed by really quickly and then theres a whole chapter on Turings halting problem. Sorry, but uh the halting problem is pretty simple for most people to understand. Anyways, i want to learn more about Diophantine equations, among other things, so I guess it was enjoyable. Two days of reading here, unless

you're a computability or number theory newb.

Jack says

If your math education petered out as mine did in the early going of calculus, there is quite a lot here that will either be very heavy going or will go right past you. Fortunately those parts aren't completely essential to appreciating the work. Chaitin is mostly trying to give the layman some understanding of the deepest insights we have into complexity and uncertainty, two notions that sort of meet at the concept of computability. Personally I'm at peace with the idea that I will never truly understand this material without actually learning far more mathematics than I ever will, and I'm grateful for writers and mathematicians like Chaitin who are willing to show me the broad outlines of some fascinating ideas.
