

Metamagical Themas: Questing for the Essence of Mind and Pattern By Douglas R. Hofstadter

Hofstadter is College of Arts and Sciences Distinguished Professor of Cognitive Science at Indiana University in Bloomington where he directs the Center for Research on Concepts and Cognition which consists of himself and his graduate students forming the Fluid Analogies Research Group (FARG). He was initially appointed to the Indiana University's Computer Science Department faculty in 1977 and at that time he launched his research program in computer modeling of mental processes (which at that time he called artificial intelligence research a label that he has since dropped in favor of cognitive science research). In 1984 he moved to the University of Michigan in Ann Arbor where he was hired as a professor of psychology and was also appointed to the Walgreen Chair for the Study of Human Understanding. In 1988 he returned to Bloomington as College of Arts and Sciences Professor in both Cognitive Science and Computer Science and also was appointed Adjunct Professor of History and Philosophy of Science Philosophy Comparative Literature and Psychology but he states that his involvement with most of these departments is nominal. At the University of Michigan and Indiana University he co authored with Melanie Mitchell a computational model of high level perception — Copycat — and several other models of analogy making and cognition. The Letter Spirit project implemented by Gary McGraw and John Rehling aims to model the act of artistic creativity by designing stylistically uniform gridfonts (typefaces limited to a grid). Other recent models are Phaeaco (implemented by Harry Foundalis) and SeqSee (Abhijit Mahabal) which model high level perception and analogy making in the microdomains of Bongard problems and number sequences respectively. Hofstadter collects and studies cognitive errors (largely but not solely speech errors) bon mots (spontaneous humorous quips) and analogies of all sorts and his long time observation of these diverse products of cognition and his theories about the mechanisms that underlie them have exerted a powerful influence on the architectures of the computational models developed by himself and FARG members. All FARG computational models share certain key principles among which are: that human thinking is carried out by thousands of independent small actions in parallel biased by the concepts that are currently activated; that activation spreads from activated concepts to less activated neighbor concepts; that there is a mental temperature that regulates the degree of randomness in the parallel activity; that promising avenues tend to be explored rapidly than unpromising ones. Not only is Metamagical Themas a great source (and resource) in itself but it will lead you to other fascinating books--to wit books that deal not only with science but with literature and music. Because I understood almost all of it the very first time through while GEB took me about a year to digest chewing slowly over each cognitive morsel sometimes metaphorically regurgitating it a few times before getting it through the cerebral equivalent of my lower intestines. The book - titled after the column - contains essays on self-referential sentences (The reader of this sentence exists only while reading me is one of my favorites); the mathematics of Frederic Chopin's compositions; a taxonomy of Rubik's Cube variations; the emerging studies of chaos and compexity; metafonts; artificial intelligence and machine learning; what the word I means; and a deep study of the mechanics and ethics of cooperation. 9780465045662 It's hard to give up on a book 200 pages in but this collection of essays by Douglas Hofstadter really doesn't present anything new that other authors haven't done better. I got past all his stuff about self referential sentences (a few gems in the rough) a political science game where the rules keep changing (total yawnfest) some opinions about people's gullibility to the supernatural (meh) and the inability of most to properly estimate large numbers (also not terribly interesting). That said Hofstadter is a wonderfully imaginative and entertaining writer and there were some themes underlying the whole book which anybody familiar with Hofstadter will be able to guess such as the nature of intelligence and consciousness and the concept of self-reference. The topics covered are broad; from the concept of self-reference applied to language and law to defining creativity and exploring its relations to artificial intelligence to biology and game theory. Other interesting points:Where is the borderline between open-mindedness and stupidity? Or between closed-mindedness and stupidity?For every debate in science itself there is an isomorphic debate in the methodology of scienceA Coffeehouse Conversation on the Turing TestOn the similarities of

models used by computers and human: SANDY: Computers certainly can make mistakes -and I don't mean on the hardware level. PAT: So you think computers will be making fewer mistakes as they get smarter? SANDY: Actually just the other way around! The smarter they get the more they'll be in a position to tackle messy real-life domains so they'll be more and more likely to have inaccurate models. To me mistake-making is a sign of high intelligence! On the Seeming Paradox of Mechanizing Creativity It is tempting therefore to imagine that good melodies are producible from some sort of recipe or mathematical formula or what comes to nearly the same thing to think that the amount of beauty in a melody could be measured by some sort of machine just as the amount of radioactivity in a sample of ore can be measured by a scintillation counter. If you doubt that the very idea of such a number is coherent just remember that attached to every piece of existent music there really is a measure of its catchiness-namely how often it actually is listened to at the present time. For example who is the president of England? Though incorrect the thought of Boris Johnson comes to mind which illustrates the slipperiness of language in mapping one related concept onto another. The Prisoner's Dilemma Computer Tournaments and the Evolution of Cooperation As discussed in Richard Dawkins's *The Selfish Gene* in a competition of iterated Prisoner's Dilemma strategies the winner was the TIT FOR TAT strategy. An interesting point which runs counter to the much touted logical paradox of the Prisoner's Dilemma is why it won: TIT FOR TAT won the tournament not by beating the other player but by eliciting behavior from the other player which allowed both to do well. There is no point in being envious of the success of the other player since in an iterated Prisoner's Dilemma of long duration the other's success is virtually a prerequisite of your doing well for yourself. While simple I believe Hofstadter nails human selfishness summarised in an earlier quote: People strongly resist seeing themselves as parts of statistical phenomena and understandably so because it seems to undermine their sense of free will and individuality. Yet how true it is that each of our 'unique' thoughts is mirrored a million times over in the minds of strangers! Hofstadter suggests that the survival of a meme which "asserts the logical rational validity of cooperation in a one-shot Prisoner's Dilemma. Given that his most popular and best selling book *Gödel Escher Bach* is still not available for Kindle I took it for granted that none of his books were available on Kindle (except perhaps *I am a Strange Loop* published if I recall correctly after Kindles were already on the market). Byte seem so long ago (Make and the recently deceased in print format *Linux Journal* notwithstanding) that it's hard to picture actual articles on Lisp appearing in what was in fact a fairly popular science magazine. Some I recall: It goes without saying that Let us make a new convention that any thing shown in triple quotes for instance "'I've changed my mind when you reach the close of the triple quotes just go directly to the period at the end of the sentence and ignore everything up to that point'" should not even be read or given the slightest attention much less actually obeyed:

Douglas Richard Hofstadter is an American scholar of cognitive science physics and comparative literature whose research focuses on consciousness thinking and creativity. He is best known for his book *Gödel Escher Bach: an Eternal Golden Braid* first published in 1979 for which he was awarded the 1980 Pulitzer Prize for general non fiction: Hofstadter is the son of Nobel Prize winning physicist Robert Hofstadter. Douglas grew up on the campus of Stanford University where his father was a professor. Douglas attended the International School of Geneva for a year: He graduated with Distinction in Mathematics from Stanford in 1965. In Physic Douglas Richard Hofstadter is an American scholar of cognitive science physics and comparative literature whose research focuses on consciousness thinking and creativity, He is best known for his book *Gödel Escher Bach: an Eternal Golden Braid* first published in 1979 for which he was awarded the 1980 Pulitzer Prize for general non fiction, Hofstadter is the son of Nobel Prize winning physicist Robert Hofstadter, Douglas grew up on the campus of Stanford University where his father was a professor. Douglas attended the International School of Geneva for a year. He graduated with Distinction in Mathematics from Stanford in 1965: In April 2009 Hofstadter was elected a Fellow of the American Academy of Arts and Sciences and a Member of the American Philosophical Society: Hofstadter's many interests include music visual art the mind creativity consciousness self reference translation and

mathematics: He has numerous recursive sequences and geometric constructions named after him, The Copycat project was subsequently extended under the name Metacat by Hofstadter's doctoral student James Marshall: [F {site_link}](#) Hofstadter's collection of quirky essays is unified by its primary concern: to examine the way people perceive and think, *Metamagical Themas: Questing for the Essence of Mind and Pattern* Pick up this book and you will find yourself returning to it again and again: I owe Hofstadter a debt of gratitude for providing me with his wonderful introduction to the works of Allen Wheelis, 9780465045662 - This is the self-referential sex hotline where people who suffer from premature ejaculation finish after hearing the antecedent of this description: It's my first time so I'm not very sure how this works. - This sentence would inform you someone else is available if it didn't end in a full stop, - I'm sorry who is available?- I'm implying you'll have self-referential sex with me: - With this sentence I'm beginning the foreplay to the self-referential phone sex, - The tone in which this statement is pronounced is intended to make you feel horny. - I am thinking of something to say but am in fact telling you something else, - If it is my first time the last sentence I said is not true. - Epimenides paradox give me an Epimenides paradox!- All self-referential sex hotline workers are liars, - Yes yes use-mention distinction go on!- 'My voice' doesn't turn you on but my voice does: 9780465045662 While this is clearly not a better book than the incomparable Godel Escher Bach I would have to say that I enjoyed it more, *Metamagical Themas* is food for thought but it's simple sugars perhaps a fruit smoothie to GEB's heavy proteins and complex carbohydrates: This was a stroll in the park by comparison and what a delightful park indeed: This book introduced me to many fascinating concepts and had a lasting influence on me in two significant ways, And 2) It inspired me write my own book about game theory. The title by the way is an anagram of "Mathematical Games, And you'd have to look far and wide to find so much fun in mathematics. 9780465045662 I don't recall how or where I got this book as a young teenager; I swear my aunt gave it to me but she denies it, This book is a collection of Hofstadter's essays and columns many of which were published in *Scientific American*: I'd say the first time I read this book I understood about an eighth of what he was talking about; I dare say if I read it again I might barely be above half. Not because the writing is difficult but because the topics are diverse and deep, Hofstadter's column in *Scientific American* was intended to bridge the literary and the scientific and does, This book was probably the most influential book I read growing up as I think it set me on the path to study computer science, *Metamagical Themas* encouraged me to play with ideas with words and with the world around me: His post scriptums don't add much to the original essays beyond tangential rambling and with hundreds of pages to go this is going to be a definite pass from me. 9780465045662 This is (mostly) a collection of Hofstadter's *Scientific American* columns. As a result the content is even more diverse in this book than in Gödel Escher Bach and reading a few columns in a row left me a little bewildered, For example he gives a discussion of large numbers with frequent references to Rubik's Cube - but maybe my dislike of the reference is just because I'm terrible at that thing. Each essay is small and self-contained making this book one I will feel comfortable going back to and re-reading, 9780465045662 This book is huge - like a massive dictionary - and packed with a bunch of essays on a range of topics too broad to even try to describe, Some of them were great and either made you laugh or think about things you hadn't before though a few weren't as good, But overall if you can make it through this book it's worth the interesting journey, 9780465045662 *Metamagical Themas* consists of 33 essays written by Douglas Hofstadter. My favourite essays and sections of their content are listed below, *World Views in Collision: The Skeptical Inquirer versus the National Enquirer* A great psychology article discussed is Ray Hyman's *How to Convince Strangers that You Know All About Them*. Hyman who studied manipulators such as salesmen and evangelists illustrates the susceptibility of human's to manipulation: Using a newsstand astrology book Hyman came up with a generic description: Some of your aspirations tend to be pretty unrealistic. At times you are extroverted affable sociable while at other times you are introverted weary and reserved: You have found it unwise to be too frank in revealing yourself to others, You pride yourself on being an independent thinker and do not accept others' opinions without satisfactory proof: Students were told this description was specific to them and were asked

to rank how accurate 'their' description was on a scale from 0 to 5: In response 87% of the students rated the description as 4 or above! One size fits all personal reflection: It can make wrong predictions even though its program runs flawlessly: Any such program has to make do with a limited amount of data-entirely correct data-and extrapolate from there. It's no different from a farmer gazing at the clouds and saying I reckon we'll get a little snow tonight, In our heads we make models of things and use those models to guess how the world will behave: We have to make do with our models however inaccurate they may be or evolution will prune us out ruthlessly-we'll fall off a cliff or something, It's just that human designers will speed up the evolutionary process by aiming explicitly at the goal of creating intelligence which is something nature just stumbled on, You would stick your proposed string of notes into a machine and out would come a number called its CQ (catchiness quotient), Analogies and Roles in Human and Machine ThinkingThe exploration of analogies is a humorous exercise which showcase our impressive ability to deal with abstractions. Analogies are complex and establishing generalised mappings precisely is yet to be achieved: We use analogies as the basis for our legal systems - precedent cases - however general definitions of these analogies have not been formed in language comprehensible to AI. Hofstadter terms this the inability of computers to understand the 'spirit of an idea' the slipperiness of concepts which goes beyond dictionary definitions, Ultimately this is a barrier to general AI and the ability of AI to express genuine creativity. This strategy entails co-operating with the opponent and cheating for one following turn if the opponent cheats. TIT FOR TAT was so consistent at eliciting mutually rewarding outcomes that it attained a higher overall score than any other strategy in the tournament: So in a non-zero-sum world you do not have to do better than the other player to do well for yourself, This is especially true when you are interacting with many different players, Letting each of them do the same or a little better than you is fine as long as you tend to do well yourself. The Tale of HappitonThe parable The Tale of Happiton strongly reminded me of The Fable of the Dragon Tyrant by Nick Bostrom: Both present a village faced with an increasingly fatal threat but one which could ultimately be overcome if the villagers collaborated deliberately: I enjoyed them both though they differ slightly in theme; Bostrom's is an allegory for the avoidable mortalities of disease while Hofstadter's is an exposition of game theory: In this tale Happiton falls prey to the Tragedy of Commons in a comical though resonant fashion. " is the ultimate determinant of extinction or not 9780465045662 While this is not exactly a review I thought I'd leave a few comments here. I recently got this on Kindle so I've been slowly revisiting a few choice bits here and there. For what it's worth I was dumbfounded to see this was available on Kindle. Anyway after downloading this I started flipping through the chapters wondering which I should reread and was a bit stunned to be reminded that there are 3 chapters on Lisp. What's interesting about this is imagining this text appearing in Scientific American, While I have fond memories of what SciAm used to be it's hard to gel that with the image of SciAm that I currently have in my head. The days of meaty tangible material in technical magazine that you could actually sit down and do something with (c. This is not to say that SciAm is not still of good quality but it's certainly a very different beast than what it used to be: These days I would basically call it a nicer version of Discover (again not to denigrate that magazine but it certainly lacks depth in most cases). 9780465045662 The thing I loved about this one is the playfulness involved. Sometimes I thought my head was going to explode from the weird wonderfulness of the ideas. The two chapters on self-referential sentences were absolutely delightful: Yields falsehood when preceded by its quotation yields falsehood when preceded by its quotation. He spent a few years in Sweden in the mid 1960s. He continued his education and received his Ph.D. He spent a few years in Sweden in the mid 1960s. He continued his education and received his Ph.D. in Physics from the University of Oregon in 1975. How can I help you?- Hi.- Dirty. Go on.- Oh yes.- You better believe it's working. Tell me what you're wearing.- I am not telling you what I am wearing.- That's so hot.- Oh yes don't stop. Tell me it's your first time.- I am telling you it's my first time. - Go on.- Oh God.- bbbThis bbsentence bis hchromatic.- Oooh argh... click beep beep beep. GEB was work to read. Immensely satisfying but work nonetheless. 1) I tried to develop my very own personal font. I finished writing the book. The font remains an unrealized fantasy. But

definitely something with serifs." This is appropriate because games are by definition fun. But its effect was even broader. A couple of the essays seemed a little dated. Think of any present day computer predicting the weather.PAT: But that's only because you've fed it the wrong data.SANDY: Not so. It's because weather prediction is too complex. Sometimes it will make wrong predictions. And for intelligent computers it'll be the same.f.To be continued.Definitely a great read!
9780465045662

