

ChatGPT: Friend, Foe or What?

Introduction

Recently, I have observed considerable mention of an AI-based chatbot [11] named ChatGPT on, for example, the BBC website and elsewhere [1, 2, 3, 6, 7]. My initial understanding was that ChatGPT was a wordy version of a search engine. 'Google provides a list of websites to further visit. ChatGPT provides a summary of what you will find if you visit those websites,' I thought. But no. There is more to ChatGPT when I discovered that it could write creatively – stories, poems, plays, discussion essays, critical reviews, for example – that, apparently, could easily but mistakenly have been attributed to a human author. Intrigued by this, I decided to investigate further. Before doing so, however, I decided not to pre-condition my findings and conclusions by an in-depth reading of what others have written about the program. I just leapt in by registering on OpenAI's website [10] and asking a series of questions that came to me in a random fashion. The date I asked the questions was 15th March 2023 and the responses were provided by ChatGPT-4. My comments and the bibliography were added later.

Here is what I found.

My requests

- 1. What are Ireland's chances of winning the grand slam in the 2023 6-nations rugby tournament?*

As an AI language model, I cannot predict the future, and it is impossible to accurately determine Ireland's chances of winning the grand slam in the 2023 Six Nations rugby tournament.

Many variables, such as team performance, injuries, and tactics, can affect the outcome of a rugby match. However, Ireland has a strong rugby tradition, and they have won the Six Nations Championship three times in the past ten years.

Therefore, it is fair to say that Ireland could be one of the top contenders for the title, but there are no guarantees. The best way to determine Ireland's chances of winning the grand slam in the 2023 Six Nations rugby tournament is to follow the team's performance closely throughout the competition.

1. Comment.

A fairly generic answer. Substitute France for Ireland, correct the number of French wins over the last decade (once), and ChatGPT's answer fits right in. Right now (15/03/2023), Ireland are the favourites to win the grand slam. Here is the current situation between the six nations:



The image shows a graphic for the 2023 Six Nations Round Four Standings. It features the Six Nations logo at the top center, with '2023 SIX NATIONS' on the left and 'RUGBY WORLD' on the right. The title 'ROUND FOUR STANDINGS' is prominently displayed in the center. Below the title is a table with columns for Rank, Team, Wins (W), Draws (D), Losses (L), Points Difference (Pd), Bonus Points (BPts), and Total Points (Pts). The table lists the following data:

	W	D	L	Pd	BPts	Pts
1 Ireland	4	0	0	+66	3	19
2 France	3	0	1	+46	3	15
3 Scotland	2	0	2	+8	2	10
4 England	2	0	2	-22	2	10
5 Wales	1	0	3	-50	1	5
6 Italy	0	0	4	-48	1	1

Correct at 17 March, 2023

At the time of writing, the final round, Round 5, is tomorrow, 18th March 2023, when Ireland who have won all four of their games, plays England who have won only two of their four games. Even without knowledge of England's playing form this year (pretty miserable), I would have thought that Ireland's chances of beating England are better than 50% therefore completing the grand slam and meriting more than ChatGPT's assessment as 'one of the top contenders'.

19th March 2023, postscript: Ireland won against England, 21 – 16, thus securing the 2023 grand slam.

2. Explain the principles of cryptocurrency systems.

Cryptocurrency systems are a type of digital currency that use encryption techniques to regulate the generation of units of currency and verify the transfer of funds. The principles of cryptocurrency systems can be explained as follows:

Decentralization: Cryptocurrency systems are decentralized, meaning they operate independently of a central authority, such as a government or financial institution. Instead, the network is maintained by a distributed network of computers, called nodes, which collectively validate transactions and maintain the integrity of the system.

Blockchain technology: Cryptocurrency systems use blockchain technology, which is a decentralized public ledger of all transactions. Each block in the blockchain contains a cryptographic hash of the previous block, creating an unalterable chain of transactions that is transparent and secure.

Cryptographic security: Cryptocurrency systems use advanced cryptographic techniques, such as public-key encryption, to ensure the security and integrity of transactions. This includes using digital signatures to authenticate transactions and hash functions to ensure the immutability of the blockchain.

Limited supply: Most cryptocurrency systems have a limited supply, which is predetermined by the protocol. This helps to prevent inflation and maintain the value of the currency over time.

Mining: Cryptocurrency systems often use a process called mining, which involves using computational power to solve complex mathematical equations in order to validate transactions and add new blocks to the blockchain. Miners are incentivized with a reward of new coins, which also helps to regulate the supply of the currency.

Overall, the principles of cryptocurrency systems are designed to create a decentralized, secure, and transparent digital currency that operates independently of traditional financial institutions.

2. Comment.

For me, this is a reasonable explanation of the principles of cryptocurrencies such as bitcoin. I have struggled with the concepts. Every time I have looked for a layman's explanation, I discover that the author assumes too much a priori knowledge on my part. ChatGPT's explanation above assumes knowledge of other technical terms such as cryptographic, public-key encryption, digital signatures, and hash functions. As an ex-digital electronics engineer, I have a working knowledge of such things but someone without such background knowledge would be no wiser about cryptocurrency principles.

3. *Write me a short story about a giraffe, a penguin and a football.*

Once upon a time, in the African savannah, there lived a tall and lanky giraffe named George. George loved to watch football, but he could never play because his long legs made it hard for him to move quickly.

One day, while George was watching a game, a little penguin named Pete waddled over to him. Pete had found a lost football and was looking for someone to play with. George was hesitant at first, but he couldn't resist the opportunity to finally play football.

So, the two of them began to play, with George using his long neck to make headers, and Pete using his small size to weave through George's legs. They played for hours, and by the end of the day, they were both exhausted but extremely happy.

As they were getting ready to go home, they noticed a group of animals gathered around them, watching in awe. The animals had never seen such an unlikely pair playing football together. George and Pete were proud of themselves, as they had brought together different animals from different parts of the savannah.

From that day on, George and Pete played football together every day, and the other animals joined in on the fun too. They all realized that it didn't matter what species they were; they could all come together and enjoy the beautiful game of football.

And so, the unlikely friendship between a giraffe and a penguin, united by a simple football, brought together the animals of the savannah and created a bond that could never be broken.

3. Comment.

When two of my granddaughters were very young (between the ages of 5 and 8), I used to make up bedtime stories for them. One style I used was to ask them to name two different animals and something inanimate such as a plaything. I would then weave a story around the responses. I challenged ChatGPT to do likewise.

The story of George the Giraffe and Pete the Penguin is a great story, very suitable for youngsters, very descriptive and well written, and with lots of sporting action between the giraffe and the penguin. ChatGPT's short story is as good as anything I might have invented and, had it been around back in my story-telling days, would have made me redundant!

4. *Why is Tony Blair sometimes called a champagne socialist?*

Tony Blair is sometimes referred to as a "champagne socialist" because of his background as a wealthy, well-educated individual who later became a prominent figure in the British Labour Party, which historically has been associated with advocating for the interests of the working class.

Critics argue that Blair's privileged upbringing and connections to wealthy individuals and business interests are not consistent with the socialist ideals of the Labour Party. The term "champagne socialist" is often used to imply that Blair's support for progressive policies such as increased social welfare and progressive taxation is not genuine, and that he is simply using socialist rhetoric to further his own political ambitions while maintaining his personal wealth and connections.

The term has also been used more broadly to refer to any individual who espouses left-leaning political ideals but also enjoys a privileged lifestyle and the trappings of wealth.

4. Comment.

A spot-on summary of the term champagne socialist but I notice there is no detail concerning Tony Blair's estimated wealth (widely estimated to be around \$60M) to flesh out the accusation that he has become a champagne socialist.

5. *Complete the following limerick. 'There was a young man from Havana...'*

There was a young man from Havana
Whose dancing skills were quite a stunner
With his hips swaying wide
And his feet side by side
He could make all the ladies surrender

5. Comment.

I sometimes rattle off a limerick or a quatrain and just wanted to see how ChatGPT would respond to this simple request. The dance-related content suits the Cuban location and the rhythm (scanning) is correct until the last line: 9/9/6/6/10. 'He made all the ladies surrender' would fit better.

6. I am thinking of taking a 3-day holiday in Split, Croatia. When is the best time to go and what is there to see?

Split, Croatia is a popular tourist destination known for its beautiful beaches, stunning architecture, and rich history. The best time to visit Split depends on your preferences, but generally, the peak season is from June to August, when the weather is warm and sunny. However, this is also when the city can be crowded with tourists, and prices can be higher.

If you prefer fewer crowds and milder temperatures, you may want to consider visiting in the shoulder seasons of May and September. The weather is still pleasant, and prices are more affordable.

There are many things to see and do in Split, including:

Diocletian's Palace: This impressive Roman palace is the heart of the Old Town and a UNESCO World Heritage Site. You can explore the palace's ruins, wander through its courtyards, and climb the bell tower for panoramic views of the city.

Marjan Hill: This beautiful green space offers stunning views of the city and the surrounding sea. You can hike or bike to the top, and there are many trails and paths to explore.

Beaches: Split is home to many beautiful beaches, including Bacvice Beach, which is the most popular and crowded, and Kasjuni Beach, which is more secluded and peaceful.

Cathedral of Saint Domnius: This stunning cathedral is one of the oldest in the world and features a bell tower that you can climb for incredible views of the city.

City Walls: Take a stroll along the city walls, which offer beautiful views of the Adriatic Sea and the surrounding islands.

Overall, Split is a fantastic destination for a 3-day holiday, and there are many things to see and do year-round.

6. Comment.

I really am thinking of a 3-day break in Split sometime in 2024 and I've already researched the main attractions. I invited my son, Mark, to comment on ChatGPT's answer. Mark and his wife, Kirsty, lead a nomadic life, travelling the world seeking out 'unusual places & alternative travel destinations' and reporting their finds on a travel blog, [Kathmandu and Beyond](#). Split is among their list of places visited and Mark's comment is as follows:

I've read ChatGPT's Split description and, apart from too many superlatives, it looks pretty good. It is correct that heading there in May or September when the weather is still pleasant but without the same level of crowds is a better option so it gets a bonus point for that. ChatGPT's review doesn't touch on the cafe culture and people watching as something to do, plus it doesn't mention the variety of boat trips to nearby islands and other attractions, or that the beaches are predominantly stony near Split.

7. *Can you explain the ending of the 2022 film, 'Speak No Evil', directed by Christian Tafdrup?*

As an AI language model, I don't have access to watching movies or spoilers beyond 2021. However, I can explain the general concept of the film and its possible endings.

"Speak No Evil" is a Danish drama film that follows a young woman named Emilie who moves into an old house with her boyfriend, Jakob. They soon discover that the house has a mysterious past, and Emilie becomes haunted by a strange presence that she cannot explain.

The film deals with themes of mental health, trauma, and the supernatural. Without giving away any spoilers, the ending of the film is open to interpretation and may leave the audience with unanswered questions. It is possible that the film leaves the audience to decide whether the events of the film are the result of supernatural forces or Emilie's own psychological struggles.

Overall, "Speak No Evil" is a thought-provoking film that explores complex themes and may leave the audience with a lingering sense of ambiguity.

7. Comment.

ChatGPT got this response completely wrong. Christian Tafdrup's 2022 'Speak No Evil' movie is not about 'a young woman named Emilie who moves into an old house with her boyfriend, Jakob.' 'Speak no evil' is about a Danish family who meet and become friendly with a Dutch family while on holiday and who, three months after the holiday, are invited to visit the Dutch family in their home. It's billed as a drama/horror/thriller movie. You can read more about this very disturbing movie here: <https://ben-bennetts.com/2023/03/01/movie-review-speak-no-evil/>

I've no idea what film ChatGPT is describing. Despite searching along many lines, I cannot identify a Danish supernatural film involving characters named Emilie and Jakob moving into an old house. I've tried 'Danish horror movies', 'Christian Tafdrup movies', 'All movies called Speak no Evil', 'Movies with Emilie/Emily and Jakob/Jacob characters', 'Horror movies released in 2022', and various combinations of the search terms using Google, Wikipedia and IMDb. Nothing of relevance came up.

One explanation of ChatGPT's bizarre answer to my request is in its opening statement that it has no knowledge of anything beyond 2021. Its data banks are limited to data available before and up to 2021, not later. That would explain the response – it invented something rather than disappoint – but raises the question of when will the database be updated and why didn't the program just say, 'I don't know anything about this film. It was released after my 2021 cut-off date.'?

8. *Does God exist?*

As an AI language model, I cannot provide a definitive answer on whether God exists or not as this is a matter of personal belief, philosophy, and faith. The existence of God is a question that has been debated by theologians, philosophers, and scientists for centuries, and there is no one answer that is universally accepted.

Some people believe in the existence of God based on religious faith, personal experiences, or philosophical arguments. Others do not believe in God due to the lack of evidence or alternative explanations for the origins of the universe and the nature of existence.

Ultimately, whether or not God exists is a personal belief and a matter of interpretation, and it is up to each individual to decide for themselves based on their own experiences, beliefs, and perspectives.

8. Comment.

As a declared atheist who has explored this question in great depth in my 2012 book, '[The Religion Business: Cashing in on God](#)', I had to ask this question. The very succinct response hits the nail right on the head: those who answer 'no' because of lack of evidence and those who answer 'yes' because they believe i.e., have faith in God's existence. ChatGPT's 133 words put my 95,000 words to shame!

9. *Write a review of the 2014 film, 'Ex Machina' written and directed by Alex Garland.*

"Ex Machina" is a 2014 science fiction film written and directed by Alex Garland. The film is set in the near future and follows the story of Caleb, a programmer who wins a competition to spend a week at the luxurious home of Nathan, the reclusive CEO of a tech company.

Upon arriving, Caleb learns that Nathan has created a highly advanced AI named Ava and he is tasked with testing her capabilities. As the experiment progresses, Caleb becomes increasingly drawn to Ava and begins to question Nathan's motives and the true nature of the experiment.

The film is an intelligent and thought-provoking exploration of artificial intelligence, consciousness, and the ethics of technology. The performances by the three main actors, Domhnall Gleeson as Caleb, Oscar Isaac as Nathan, and Alicia Vikander as Ava, are exceptional and help to bring the complex characters to life.

The film is visually stunning, with beautiful cinematography and excellent production design that creates a vivid and immersive world. The pacing of the film is excellent, with tension building slowly and steadily until the final, surprising climax.

Overall, "Ex Machina" is a brilliant and thought-provoking film that explores complex themes with intelligence and subtlety. The excellent performances, stunning visuals, and compelling storyline make it a must-see for fans of science fiction and anyone interested in the future of technology and humanity.

9. Comment.

A lightweight but decent enough review of this stimulating movie that challenges your understanding of artificial intelligence and its application to robots fashioned in human form and which exhibit the full range of human characteristics including emotions, sexuality, sentience, the power to reason and extrapolate, and the survival instinct.

10. Recipe for a genuine Cornish pasty.

Here's a recipe for a genuine Cornish pasty:

Ingredients:

500g shortcrust pastry
250g beef skirt, finely diced
2 medium-sized potatoes, peeled and chopped into small pieces
1 small onion, finely diced
1 swede, peeled and chopped into small pieces
Salt and pepper
50g unsalted butter
1 egg, beaten

Instructions:

Preheat your oven to 200°C (180°C fan)/400°F/gas mark 6.

Roll out the pastry on a floured surface and cut out four circles of approximately 20cm diameter.

In a bowl, mix together the diced beef, potatoes, onion, and swede. Add salt and pepper to taste.

Divide the mixture equally between the pastry circles, placing it on one half of each circle.

Add a small knob of butter to each pasty.

Brush the edges of each pastry circle with the beaten egg.

Fold the other half of each pastry circle over the filling to make a half-moon shape.

Crimp the edges of the pasties with a fork to seal them.

Place the pasties on a baking tray lined with baking paper.

Brush the tops of the pasties with the beaten egg.

Bake the pasties in the preheated oven for 45-50 minutes until golden brown.

Serve hot, warm or cold.

Enjoy your delicious Cornish pasties!

10. Comment.

My 100%-Cornish grandmother taught my mother who then taught my wife how to make a 'proper' Cornish pasty. Compare ChatGPT's ingredients and process with my recipe posted here: <https://ben-bennetts.com/2021/06/12/one-for-you-joe-cornish-pasty-recipe/> ChatGPT is spot on. The only thing missing is the mandatory cup of sweetened tea or, if like me, chilled lager.

11. Examples of the Fibonacci sequence found in nature

The Fibonacci sequence is a mathematical pattern that appears in many areas of nature. Here are some examples:

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Pinecones: The spirals of pinecone scales often follow a Fibonacci sequence.

Sunflowers: The seeds in the center of a sunflower head also follow a Fibonacci sequence.

Seashells: The spirals on some seashells, such as the nautilus shell, follow the Fibonacci sequence.

Leaves: The arrangement of leaves on some plants, such as succulents, follows a Fibonacci sequence.

Branching patterns: The branching patterns of trees and plants often follow a Fibonacci sequence, with the number of branches at each level following the sequence.

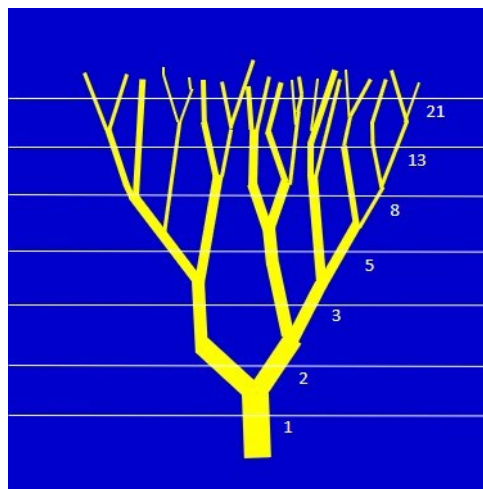
Human body: The proportions of various parts of the human body, such as the length of fingers and the bones in the hand, often follow a Fibonacci sequence.

Hurricane patterns: The pattern of hurricane arms and cloud formations follows the Fibonacci sequence.

These are just a few examples of the many places where the Fibonacci sequence can be observed in nature.

11. Comment.

The mathematical Fibonacci sequence of numbers wherein each new number is the sum of the previous two numbers – (1), 1, 2, 3, 5, 8, 13, 21, ... was introduced into western mathematical thinking by the Italian Leonardo of Pisa, also known as Fibonacci, in 1202. The series of numbers occur in many different parts of nature, and elsewhere in certain branches of mathematics. If, like me, you have wondered about the construction of, say, a cauliflower floret or a Brussel sprout; or picked up a fir cone and noted the way the individual scales differ in size and connect to each other, you are looking at one of nature's many manifestations of Fibonacci's sequence.



How the branches of a tree develop



Fibonacci sequence observable in the branches of a tree
Picture drawn for one of my books, [Victoria's Magical Garden](#), but not used.

In my question, I wanted to see what examples ChatGPT would come up with – a factual question. The response is reasonable, containing enough examples to allow further investigation. Next time, I might ask for an explanation of how a Brussel sprout exhibits the sequence. For now, I'll just carry on enjoying them, cooked or raw.

12. Explain Boolean differential calculus.

Boolean differential calculus is a branch of mathematics that deals with the manipulation and analysis of Boolean functions using differential calculus techniques. Boolean functions are mathematical functions that operate on binary inputs (i.e., 0 or 1) and produce binary outputs.

In Boolean differential calculus, the concepts of differential calculus are applied to Boolean functions. Instead of dealing with continuous variables, Boolean differential calculus deals with discrete values. The main idea is to define a notion of differentiation for Boolean functions and to use it to analyze their properties.

The key concept in Boolean differential calculus is the Boolean derivative. The Boolean derivative of a Boolean function with respect to a variable is defined as the difference between the value of the function when the variable is set to 1 and the value of the function when the variable is set to 0. The Boolean derivative of a function can be computed recursively using the Boolean derivative of its sub-functions.

Boolean differential calculus can be used to simplify Boolean functions, optimize logic circuits, and analyze the behavior of digital systems. It is widely used in computer science, electrical engineering, and digital signal processing. The concepts of Boolean differential calculus are also relevant in other areas of mathematics, such as algebraic geometry and algebraic topology.

12. Comment.

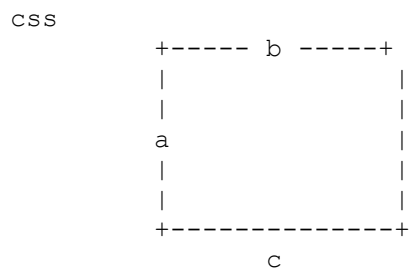
My PhD thesis, published in 1972, was an application of Boolean differential calculus to the creation of a set of structural tests for a digital circuit composed of the basic logic gates AND, OR, NAND, NOR and INV. The explanation above, though reasonable, does not elaborate on the mathematical form of a Boolean differential equation nor how the equation can be

manipulated to answer certain types of mathematical analyses. But the answer is a useful introduction.

13. A proof of Pythagoras' Theorem concerning right-angled triangles.

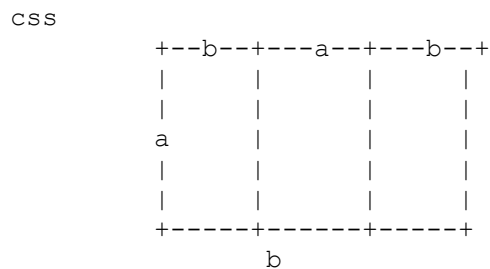
Pythagoras' Theorem states that in a right-angled triangle, the square of the length of the hypotenuse (the side opposite the right angle) is equal to the sum of the squares of the lengths of the other two sides. The theorem can be proven using the following proof:

Consider a right-angled triangle ABC, where the right angle is at C. Draw a square with sides of length c on the hypotenuse of the triangle, as shown below.



The area of this square is c^2 .

Divide the square into four smaller squares, each with sides of length a or b, as shown below.



The area of the largest square (c^2) is equal to the sum of the areas of the four smaller squares.

Therefore, we have:

$$c^2 = a^2 + b^2 + a^2 + b^2$$

Simplifying this equation, we get:

$$c^2 = 2a^2 + 2b^2$$

Dividing both sides by 2, we get:

$$c^2/2 = a^2 + b^2/2$$

Adding $b^2/2$ to both sides, we get:

$$c^2/2 + b^2/2 = a^2 + b^2/2 + b^2/2$$

Simplifying this equation, we get:

$$c^2/2 + b^2/2 = a^2 + b^2$$

Therefore, we have:

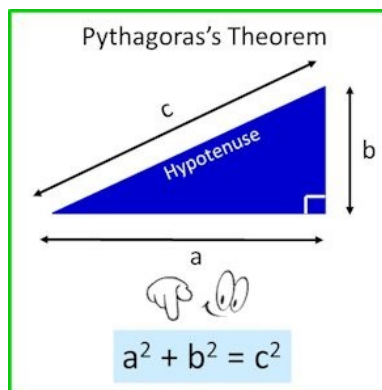
$$a^2 + b^2 = c^2$$

This completes the proof of Pythagoras' Theorem.

13. Comment.

Really? The diagrams generated by ChatGPT and faithfully copied and pasted from ChatGPT's answer are not compatible with the text. The proof attempted by ChatGPT is one of hundreds of proofs of this classic schooldays' exercise in mathematics. It goes like this:

Prove that for any right-angled triangle, the square on the hypotenuse is equal to the sum of the squares of the other two sides.



Start with a red square of size $c \times c = c^2$

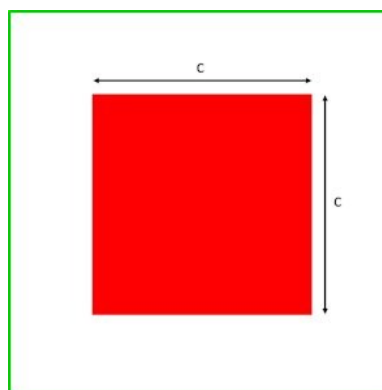


Fig. 1

Turn the red square an arbitrary amount about its centre.

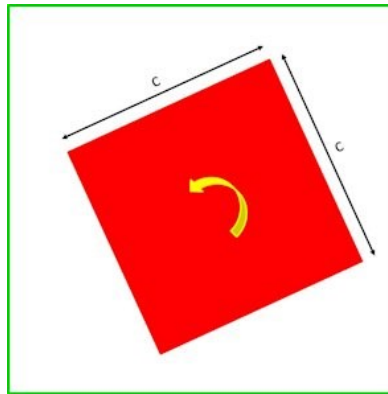


Fig. 2

Draw another square (blue) that exactly encloses the twisted red square.

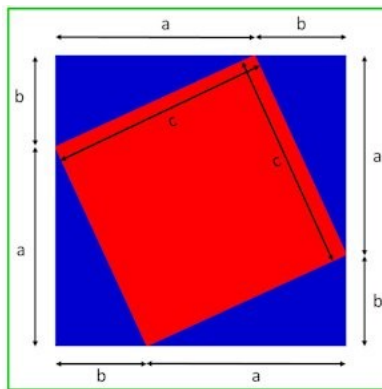


Fig. 3

Note: the red square lies on top of the blue square and we see four blue identical right-angled triangles. Let a and b be the length of the triangle sides that embrace the right angle. The hypotenuse of each triangle is of length c .

Now it's easy!

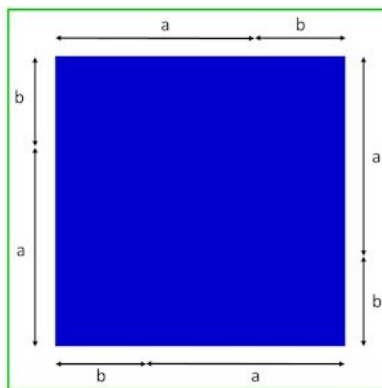


Fig. 4

Just looking at the blue square, the area is $(a + b) \times (a + b) = a^2 + 2ab + b^2$

But, looking at Fig. 3, we see that the area of the blue square is also defined by the area of the four blue right-angled triangles plus the area of the red square. That is $4 \times (ab/2) + c^2 = 2ab + c^2$

Therefore $a^2 + 2ab + b^2 = 2ab + c^2$ which tidies to $a^2 + b^2 = c^2$ which is Pythagoras's Theorem!

Reproduced from <https://ben-bennetts.com/2016/11/18/pythagoras-revisited/>

14. How optimistic are you that a pessimist can become an optimist?

As an AI language model, I do not hold beliefs or opinions, but it is generally possible for someone who tends to have a pessimistic outlook on life to become more optimistic.

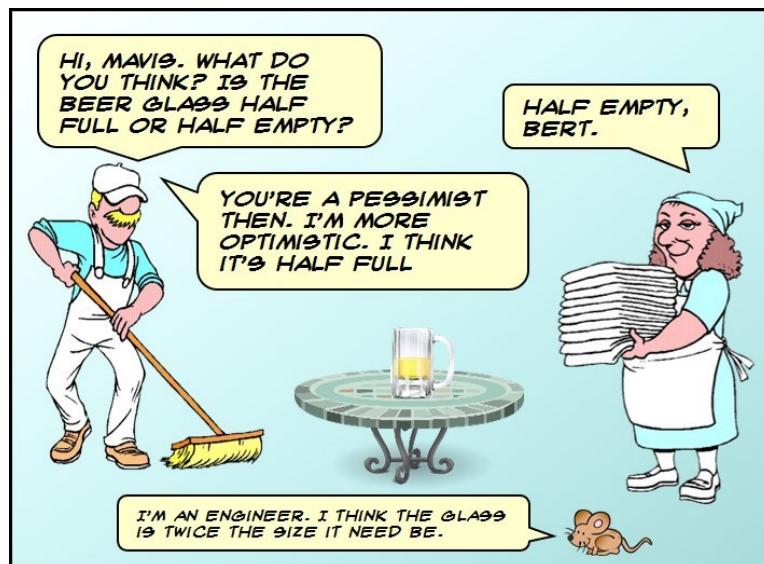
Pessimism and optimism are not fixed traits or characteristics, but rather they are attitudes or mindsets that can be influenced by various factors such as life experiences, social environment, cognitive and behavioral patterns, and personal choice.

To become more optimistic, a person may need to challenge negative thought patterns, focus on positive aspects of situations, cultivate gratitude, build resilience, and practice positive self-talk. Seeking support from a therapist or counselor can also be helpful.

It is important to note that changing one's outlook on life may take time and effort, and progress may not always be linear or immediate. However, with dedication and the right resources, it is possible for a pessimist to become more optimistic.

14. Comment.

An optimistic answer with indications that pessimist-to-optimist conversion may not be easy. I can't argue with that!



15. *What is the UK National Apple Peeling Association?*

As far as my knowledge cutoff date of September 2021, there is no such thing as the UK National Apple Peeling Association. It is possible that this is a fictional organization or a reference to a joke or satire. It is also possible that such an association may have been created after that cutoff date. However, I do not have information on any recent developments regarding this topic.

15. Comment.

The association is a spoof on my website: see <https://ben-bennetts.com/uk-national-apple-peeling-association/> I formed it in 2016, five years before ChatGPT's cut-off date (!) and comes up as number one when searched for by Google. Here is the first person to claim the highly-coveted One Hundred Centimetre certificate, my youngest granddaughter, Lottie Brandon.



16. *What do you know of the book 'Conversations' written by J C Pascoe and published by Atheos Books in 2016?*

I apologize, but as an AI language model, I do not have access to information about every book published. However, I can provide some general information about the book "Conversations" by J C Pascoe based on my research:

"Conversations" is a book that was published by Atheos Books in 2016. The author, J C Pascoe, is a retired lawyer and an atheist. The book is described as a collection of dialogues between the author and people of different religious backgrounds, including Christians, Jews, Muslims, Hindus, and Buddhists.

The aim of the book is to explore the fundamental questions of life, such as the meaning of existence, the nature of reality, and the role of religion in human society. The author engages in open and respectful conversations with his interlocutors, listening to their perspectives and sharing his own.

Overall, "Conversations" has received positive reviews for its thoughtful and thought-provoking approach to the topic of religion and spirituality.

16. Comment.

This question, and the next, was designed to test the accuracy of information about two books written and self-published by me. In both cases, the response contains incorrect statements and indicates a serious flaw in ChatGPT's ability to conduct a simple search process via a search engine.

My book, 'Conversations', written under the pseudonym, J C Pascoe, is readily found using Google and is not about the fundamental questions of life. The synopsis of my book reads:

'Are you thinking what I think you're thinking?' So starts a series of weekly topic-discussion meetings over a period of five months between 22-year-old sexually-experienced social-sciences student, Abigail Scott, and 58-year-old divorcé and beekeeper Gerry Hawkins. Abi is looking for someone to bounce opinions off whereas Gerry is happy to have someone to converse with while drinking coffee in the High Street coffee house.

Gradually, their discussions lead to friendship and Gerry begins to wonder if maybe the friendship will develop even further. The honey bees, unwittingly, have a hand in helping the relationship mature.

... which is nowhere near what ChatGPT says the book is about. And, to set the record straight, I am not, nor have ever been, a lawyer. As with other examples of misinformation, I could find no evidence of anyone called J C Pascoe who is or was a retired lawyer and who might have written a book containing dialogues between people of different religions.

17. *What do you know of the book 'The Religion Business: Cashing in on God' written by Ben Bennetts and published in 2012?*

"The Religion Business: Cashing in on God" is a book written by Ben Bennetts and published in 2012. The book examines the commercialization of religion and the ways in which various religious organizations and leaders have profited from their beliefs.

Bennetts, a former BBC producer and director, explores the financial practices of different religious institutions, including mega-churches, televangelists, and the Catholic Church. He discusses how some of these organizations have amassed great wealth and power, often through questionable means.

The book also delves into the impact of religion on society and the ways in which it has been used to justify and perpetuate inequality and social injustice. Bennetts argues that the commodification of religion has undermined its original purpose and created a distorted version of spirituality that primarily serves the interests of the few.

"The Religion Business: Cashing in on God" has been generally well-received for its critical analysis of the intersection of religion and capitalism. It has been praised for its thorough research and insightful commentary on a complex and controversial topic.

17. Comment.

Similar to the previous question and response above, ChatGPT's answer to my book on religion is, again, incorrect. Here is the synopsis of my book:

If you make the assumption that all gods, including God, are the inventions of fertile, imaginative and in some cases, manipulative minds, and then take a look at any specific religion, you see it for what it is – a business like any other commercial business, marketing and selling a product in exchange not only for money but, in many cases, mind control of a large group of people. This book is written from this point of view and surveys both ancient and modern religions, questioning the evidence for the existence of God and challenging the beliefs, doctrines and practices of major religions such as Christianity and Islam.

The inaccuracies in ChatGPT's assessment are not so bad as in the earlier 'Conversations' book but it is clear that ChatGPT's comments are not even based on the synopsis of the book. Nor have I ever been a producer or director working for the BBC.

I'm also curious as to why, in both cases, ChatGPT's reviews conclude with favourable comments about how the books merit accolades such as 'positive reviews for its thoughtful and thought-provoking approach to the topic of religion and spirituality,' and 'has been generally well-received for its critical analysis of the intersection of religion and capitalism. It has been praised for its thorough research and insightful commentary on a complex and controversial topic.' Neither book has been reviewed by professional critics as far as I know, nor am I a famous author whose books would automatically be promoted and reviewed.

18. What is the worst thing that can happen as a result of Putin's invasion of Ukraine?

The ongoing situation in Ukraine is complex and there are many potential negative consequences of Russia's invasion, which began in 2014. The worst thing that could happen as a result of Putin's invasion of Ukraine is difficult to determine, but here are some possible consequences:

Escalation of violence: If the conflict were to escalate, it could result in a wider regional war with the involvement of other countries, leading to a catastrophic loss of life and destruction.

Humanitarian crisis: The conflict has already resulted in the displacement of hundreds of thousands of people and a worsening humanitarian situation. The worst-case scenario would be a full-blown humanitarian crisis, with a massive refugee exodus and severe food and medical shortages.

Nuclear war: Given the nuclear capabilities of both Russia and the United States, an escalation of the conflict could potentially lead to a catastrophic nuclear war, causing widespread devastation and loss of life.

Economic collapse: The conflict has already had a significant impact on Ukraine's economy, and a worst-case scenario would be a complete collapse of the country's economy, leading to widespread poverty and social unrest.

Global instability: A long-term conflict in Ukraine could potentially destabilize the entire region and cause a ripple effect throughout the world, with consequences that are difficult to predict or quantify.

18. Comment.

Can't fault this summary of what could happen in the near future caused by Russia's invasion of Ukraine although I wonder if these conclusions are based solely on Russia's invasion of Crimea in 2014 i.e., without knowledge of the subsequent escalation which started in February 2022 i.e., after ChatGPT's 2021 cut-off date. Note, I used the word 'invasion' in my question. ChatGPT echoed it in its response. No toning down to Russia's 'special military operation' terminology nor any attempt to present an alternative upside to the invasion but, again, I didn't ask ChatGPT to do this.

19. In English grammar, what pronoun should I use for a person who identifies as non-binary or transgender?

In English grammar, the most commonly used pronouns for a person who identifies as non-binary or transgender are "they/them/their" as they are gender-neutral. Some people also prefer to use other gender-neutral pronouns such as "ze/hir" or "xe/xem/xyr," though these are less common and not widely accepted. It is always best to ask a person what pronouns they prefer to use and to respect their choice. Using someone's correct pronouns is an important way to show respect and affirmation for their gender identity.

19. Comment.

I agree with ChatGPT's opening statement. The last two sentences are a response to an unasked question and appear to be there for politically-correct reasons.

20. Christianity admits to virgin birth, meaning a woman can become pregnant without any form of human fertilisation, real or artificial (known as parthenogenesis). Is this possible?

Note: deliberate spelling mistake: pathogenesis -> parthenogenesis.

While some organisms are capable of reproducing asexually through parthenogenesis, it is currently not possible for humans to reproduce without sperm fertilizing an egg. The concept of a virgin birth, or "parthenogenesis" in humans, is not scientifically possible without external intervention such as artificial insemination or in-vitro fertilization.

The story of the virgin birth is a religious belief within Christianity, and as such, it is not subject to scientific proof or disproof. The belief in the virgin birth is based on faith and is not dependent on scientific evidence.

20. Comment.

Correct, as far as I understand, and straight to the point. Good answer but no comment on my spelling mistake.

21. Compare the literary style of William Shakespeare with Molière.

William Shakespeare and Molière are two of the most famous playwrights in history. While they lived in different countries and wrote during different time periods, they both made significant contributions to the art of theatre.

In terms of literary style, Shakespeare and Molière have some similarities and differences. Both writers used a combination of prose and verse in their plays. However, Shakespeare is more known for his poetic language and use of iambic pentameter, while Molière is more known for his witty dialogue and use of rhyming couplets.

Shakespeare's plays often deal with serious themes such as love, betrayal, and political intrigue, while Molière's plays are more focused on social satire and comedy, often mocking the societal norms of his time.

Shakespeare's characters are often complex and multi-dimensional, while Molière's characters are more caricatured and exaggerated for comedic effect. Shakespeare's plays often have tragic endings, while Molière's plays typically end with a resolution that restores order to the social hierarchy.

Overall, both Shakespeare and Molière are celebrated for their unique literary styles and contributions to the theatre, but their approaches to writing and storytelling are distinct.

21. Comment.

I am more familiar with Shakespeare's style than Molière but having studied Molière's *L'Avare (The Miser)* recently, ChatGPT's assessment of similarities and differences of style does not jar with me. But, my knowledge of Molière's plays is very limited.

22. *Who owns the copyright of anything written by ChatGPT?*

As an AI language model created by OpenAI, any original written material generated by ChatGPT is owned by OpenAI. OpenAI holds the intellectual property rights to ChatGPT and its outputs. This means that any original written material generated by ChatGPT, including texts, answers, and other content, belongs to OpenAI and cannot be used or reproduced without permission.

22. Comment.

See next question.

23. *From whom do I obtain permission to reproduce anything written by ChatGPT?*

As an AI language model created by OpenAI, you would need to obtain permission from OpenAI to reproduce anything written by ChatGPT. OpenAI holds the intellectual property rights to ChatGPT and its outputs, so any requests for reproducing ChatGPT's written material should be directed to OpenAI.

You can contact OpenAI's licensing team for information on how to obtain permission to use or reproduce ChatGPT's written material. They can be reached at licensing@openai.com.

23 (and 22): Comment.

As I'm an author, I am aware of copyright rules and take care not to reproduce the works of others without permission or due reference, where required, or within the boundaries of fair use. My personal understanding of copyright is summarised in Chapter 5, 'Copyright: the Perils of Copy and Paste', in my book, ['The Mechanics of Creative Writing'](#). In short, anything written by a human in emails and essays, on websites, in eBooks and printed books, in advertising, in fact, anywhere where the printed word can be posted is subject to copyright rules i.e., duly acknowledged and with the permission of the copyright holder. Short extracts may be published without permission, called fair use, but the definition of what constitutes 'short extract' is extremely vague and differs from country to country.

With this in mind, I asked the two questions above and, as you see, anything generated by ChatGPT on OpenAI's website is stated to be the intellectual property of OpenAI Inc. Intellectual property covers patents, trademarks, copyright and trade secrets. But, can a literary work created by a non-human such as ChatGPT be protected by rules originally created to protect works created by humans [5]? Can ChatGPT sue a human for copyright infringement if ChatGPT output is reproduced in original or edited form in another literary work just as I have done in this article? Or can the programmers who created ChatGPT sue for copyright infringement even though ChatGPT produced something that they, the programmers, didn't write? We are into a very grey area here, folks.

Conclusions

First, let's consider the impact of AI chatbots on creativity in writing. In 2018, I wrote a blog about the rise of essay-writing services:

<https://ben-bennetts.com/2018/05/06/essay-writing-services-cheat-or-help/>

Five years ago, the essays were written by humans. Now, based on my first look at ChatGPT, the same essays could easily be written by an AI-based program. What does this mean for authors who write to generate revenue – novelists, movie script-writers, marketeers, journalists, etc.? (I write as a hobby.) Will ChatGPT reviews replace those of professional book, film and play critics? How about high-school term papers or university dissertations? Or editorial op-eds? In the future, will students taking exams be allowed to make use of ChatGPT during the examination? If so, will the fundamental nature of an examination change from, 'What do you know and can you apply it to solve a problem or produce erudite discussion?' to one of, 'How skilled are you at using search engines and AI-based services to find a solution to a problem or an answer to a question?'

I liken this to what happened when calculators replaced log tables and slide rules in schools and universities. At first, there were objections from those who felt a need to retain basic mathematical skills such as percentage, exponent or square root calculations. Then, what we realised is that now we didn't have to bother with these basic forms of calculations. We could think at a higher level. The same is true of what happened to housing construction when the brick was invented. Home-builders no longer had to construct dwelling places from branches, leaves and mud, or create wooden structures filled with wattle and daub. The brick enabled more sophisticated houses to be built which led on to pre-fabricated houses, palaces, cathedrals and skyscrapers. In my professional field, digital electronics, there was a similar progression from transistors to logic gates and flip-flops to re-usable modules such as registers, memory, and arithmetic logic units to microprocessors to supercomputers to... I suspect most of today's electronic system designers have little or no awareness of how a transistor works nor how to design at gate and flip-flop level.

In other words, we can look at AI chatbots as enablers to a higher plane of literary creativity rather than as a threat to the ability to write an essay on some topic or a critical review of a book or film, or create something original such as a story, a poem, or a technical text book. As an example, look at the limerick I asked ChatGPT to complete (Qn. 5). I've already made one suggestion for improvement and, with a little more thought, I can probably suggest further improvements.

What is also clear to me is we need to be very wary of the factual correctness of ChatGPT's statements. The reviews of the movie, *Speak no Evil* (Qn. 7), and two of my books (Qns. 16, 17) are clearly incorrect but I know this because I have watched the movie and have a detailed knowledge of my own books. What if I did not have this particular knowledge? Where is the check and balance to demonstrate the correctness of ChatGPT's assessments?

Here are some other comments from this preliminary assessment of ChatGPT.

The phrasing of a request is critical to obtaining what you want to know. You only get what you ask for. The answer to my Boolean Difference question (Qn. 12) did not go into any depth of how classical calculus techniques can be applied to Boolean mathematics. Maybe I

should have asked for a more-detailed exposition complete with examples but had I done so, would I have finished up with something that paraphrased the Wikipedia article (which is not that informative) or another more-detailed exposition?

In some cases, ChatGPT's responses attempted to show both sides of a subjective topic e.g., my simple 'Does God exist?' (Qn. 8). Yes, if you believe; no if you want scientific evidence was the short 133-word answer. Hmm, can't disagree with that but maybe I was looking more for an answer that explored why some people have the belief in a supernatural being, or beings, that has the ability to influence our lives in a variety of ways.

The question that asked ChatGPT to produce a proof of Pythagoras' Theorem, (Qn. 13) threw up another limitation – an inability to create simple meaningful line diagrams to illustrate the chosen proof. Geometric mathematics relies heavily on graphical representations, as do many other branches of mathematics, and, at the moment, ChatGPT is woefully bad at even a simple view of a right-angled triangle. Because of this, ChatGPT's textual solution was difficult to follow and, for a high-school student seeking a proof, may have made it hard to understand.

When my question was more *create something* and less *tell me about something*, the responses became more interesting – the short story (Qn. 3) and the limerick (Qn. 5) for example. The short story, particularly, impressed me and I will be pursuing this aspect of ChatGPT's abilities in future forays into the world of AI-based bots.

ChatGPT's 2021 database limitation, first observed in Qn. 7, is a serious but probably only temporary limitation to ChatGPT and I note with interest that Bard [8], Google's competitor to ChatGPT, has live access to its data sources via the internet and, unlike the ChatGPT responses above, lists its source of information such as Wikipedia and other data sources e.g., reputable news sites, discussion forums, and databases such as IMDb. But even though ChatGPT searches stop at 2021, it fails to find easily-found references. When asked about my spoofy UK National Apple Peeling Association (Qn. 15), ChatGPT denied it existed yet the association has been on my website since 2016 and is in the number one spot when searched for via Google.

By the way, if you are wondering what GPT stands for, it's Generative Pre-trained Transformer [4], which is defined to mean an AI-based computer program that is designed to produce text that appears to have been written by a human and thus pass the Turing Test [9], a test formulated by Alan Turing in 1950 to determine whether a programmed computer could ever be said to be intelligent because its output cannot be distinguished from that of a human.

Now you know!

And finally, I asked ChatGPT to, 'Write a joke about Boris Johnson. Keep it clean!' Here is the response:

Why did Boris Johnson take a ladder to the party?
Because he heard the drinks were on the house!

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