

The paranormal force of Euler's formula (?)

I am very sceptical when it concerns paranormal phenomena; if I cannot find any rational explanation or at least some elements which could explain the phenomena I do not believe in it. But I remain open to change my mind if new evidence is found.

Sometimes when I read a poem, listen to a song and my mind drifts away in the labyrinth of the mind entering in a day-dreaming state where the non-rational reigns I might see things differently!

This happened when I listened for the first time to the song "God Is God" performed live by Joan Baez.



The first sentences read:

"I believe in prophecy
Some folks see things not everybody can see.
And, once in a while, they pass the secret along to you and me."

While listening I thought I too believe in the existence of such prophecies in particular those that can be seen by some and must thus have a sound basis. There is a strong link between some prophecies and telepathy. Some might indeed receive signals from different persons at a given moment in time and space and distill these into a prophecy. I have no strong evidence, in fact no evidence at all, that telepathy exists but I can nevertheless imagine that the brain emits signals that can be received by others. If you ask this question to a neuroscientist he will certainly answer that it is impossible but who knows exactly what the future of science holds?

Lately I had a strange experience but before going to that I must first set the scene.

I am travelling often to London by car some years almost every month. Now that the Channel Tunnel is there it is very convenient to go there by car in particular if you stay South East or South West from the City. Since most of the time I travel alone I take on-board passengers through BlaBlaCar one of the carpooling platforms in Europe.

Normally we leave rather early around 6.30 am thereby avoiding the traffic jams of Paris I therefore inform the potential passengers on the website that I will not wait beyond 6.30 am except if I receive a phone call informing me of a slight delay.

It has become a routine; 122 km from Paris we stop for a coffee and a croissant than we head towards the tunnel where again we have short break for second espresso. From Folkestone to my apartment is only 120 km most of it highway. We arrive approximately around noon.

A few days before leaving I put an announcement on BlaBlaCar. I accept passengers only after having verified that they already travelled with BlaBlaCar and that they got a very positive evaluation. I also ask for their nationality and given the dream of many to settle down in the United Kingdom I refuse any nationals from exotic countries.

Over the years everything went smoothly though I had to refuse some passengers at the last moment in one occasion a man showed up with two heavy suitcases he told me that he couldn't travel with me but that his brother would collect the suitcases in London....

But these were exceptions.

Recently I accepted three passengers all three had travelled with BlaBlaCar. Two of the passengers showed up well before 6.30 am; I knew already one from a previous trip; he manages contracts of some football players. The second one had a French Passport and lived in Britany he was a dancer and had an appointment for a casting in London. It wasn't clear to me whether his mother or father came from Africa. He mentioned something but I didn't pay any attention to it.

We were waiting for the last passenger a lady born in Zaire (now again called the Democratic Republic of the Congo) with a French passport. At the last minute not one but two young ladies showed up. One of them told me that she was the one registered with BlaBlaCar but due to an unforeseen family problem she could not travel with me instead her sister would travel with me to London where her brother would wait for her. I don't know why I accepted to swap passengers but I did. The first part of the trip went well and we were on schedule when we arrived at the border between France and the UK which lies in France before boarding the Eurotunnel train.

To my surprise we were stopped by the French Border Police usually this goes fast and the real control is done at the UK border police station. I handed over our ID documents. Everything seemed to go well except when the police officer asked the girl from Congo if she confirmed that the ID was really hers! She said yes but the police officer was not convinced he asked us to wait a few minutes in the meantime I asked the girl if the papers were really hers. She mumbled something and nodded yes with her head. I then asked her if she had lived in the Democratic Republic of the Congo; she said yes in Kinshasa. It happens that I was a teacher of Mathematics and Physics in Zaire some 400 km from Kinshasa. I wanted to know if she really was Congolese; I therefore asked her if she spoke Kikongo, the local language where I use to live, but she said no. I then asked her if she spoke Lingala which is the language spoken in Kinshasa. I didn't remember much of Lingala but I could ask her "Mbote Ndenge nini" meaning "how are you?". She looked at me and remained silent I then realised that there was indeed a problem with her papers.

The police officer came back with a black woman police officer she looked at the picture of the ID and then to the girl and said that this isn't the same person.

We were all obliged to leave the car and I was obliged to hand over my papers including those of my car. I was taken apart for an interrogation they wanted to verify that I was not involved in illegal transport of people. I understood their suspicion having on board besides the Congolese Girl a man from Côte d'Ivoire with an Italian Passport and saying that he lives in France and the UK! Finally after more than an hour they let us go except for the Congolese girl she was obliged to stay there for further control. Even with all the trouble she had caused I felt pity for her.

The remaining part of the journey went well but I was angry at myself of not having refused the swap! Better next time!

Saturday evening I opened a book that a Japanese friend Professor Satoko Kawamura had recommended to me written by Yoko Ogawa. The English title is "The Housekeeper and the Professor" but in French it is called "La formule préférée du Professeur". I was intrigued by the fact that the title in English and French were totally different. I would never have bought a book with the English title but would certainly be tempted by the French one.

I closed the book and decided to find out the meaning of the original title. The original title was mentioned in the book "Hakase no aishita sushiki". I went on Google Translate and the answer was "A sushi lined with hakase"; evidently nonsense! I then sent a note for help to a Japanese student with whom I had discussions on robotics (see on my website Brainstorming on Robots and Artificial Intelligence (AI) between Kazuki and René in a bizarre place...). He answered me that the Title reads 博士の愛した数式 (indeed Hakase no aishita sushiki) and may be translated literally as "The formula that Dr. loved". I typed the Japanese title in Google Translate but this time using the Chinese characters (Kanji) and there the answer was "Dr. beloved formula". This shows the difficulty in translating a Japanese text if one uses latin characters.

This being solved I started reading. As Anna Faherty in her book review wrote; "There may be no page-turning plot to keep you reading, but the book's depiction of the true nature and attraction of number-crunching is captivating"

The book is about the relations between a professor in mathematics who lives, after an accident, with only eighty minutes of short-term memory and his housekeeper and her son. It is an interesting book and I read in one-go the first 100 pages till late at night, I decided to finish the book maybe back home.

Sunday was a very busy day and only in the late afternoon I put with some hesitation an announcement on BlaBlaCar for the return trip on Tuesday morning London – Paris.

Monday evening, I was already in bed, I received a request for reservation on BlaBlaCar I looked at it, went to the site and read the profile of the passenger. Her name was Emilia she was a member of BlaBlaCar since three years but never used it since. There was thus no evaluation available. Her profile was very concise, which is not exceptional on this site, it was a young lady 36 years old and she wrote:

"I speak fluently Spanish, English, French and some Italian and Portuguese too but I'm quite introvert so at the end it doesn't matter cause I don't speak that much :) But I'm respectful and nice."

I found this message somewhat enigmatic and had the impression that there was a message behind it but I couldn't think of what exactly. She had an Italian passport but that was exactly the language that she is not fluently in!

I opened the website again, I only then realised that there was a picture of Emilia posted on her profile. The picture showed a young woman, her head slightly inclined, dark hair, and dark eyes with a penetrating gaze, lips pressed together. This was definitely an unusual picture for such a website.



I do not know why but it reminded me of a poem “ El Desdichado” of Gerard de Nerval except that here it would concern a woman.

Je suis le Ténébreux, - le Veuf, - l'Inconsolé,
Le Prince d'Aquitaine à la Tour abolie :
Ma seule Etoile est morte, - et mon luth constellé
Porte le Soleil noir de la Mélancolie.

No evaluation; no acceptance that is what I always do and with the recent event just a few days ago with the Congolese girl I decided not to make any exception. I intended thus to push on the NO button but I don't remember what happened maybe my finger touched the NO and YES button at the same time but anyway it was the YES that was retained. I tried immediately to cancel it but to no avail! When it not possible to change a decision I often use the Arabic expression “insha'Allah” in French we would say “advienne que pourra” I couldn't find a good English translation but it means something like “if something happens I will see then!”.

I fell asleep almost immediately but maybe an hour later I suddenly awoke because I dreamt a tremendously vivid nightmare. At first I didn't remember anything; I sat in bed for a moment to collect my thoughts. I then decided to get up from bed and I went to kitchen to make myself a deca-expresso.

Sitting in the sofa I remembered that in my dream I drove to the parking of the Super Market where I had the appointment with Emilia from BlaBlaCar. When I arrived and parked the car I saw a young woman slowly walking in my direction. What struck me immediately was that she had no luggage whatsoever and that she was wearing a rather large coat. She didn't say a word and we left for the Channel Tunnel. In the middle in the Tunnel I noted that she opened the buttons of her coat and was wearing under it an explosive belt. No doubt Emilia had the intention to blow herself up in the middle of the Tunnel hoping to cause as much damage as possible. When I saw her hand slowly moving towards the detonator I was determined to act and woke up with cold sweats!

A flashback!

On August 1, 1984 I came back from ESTEC (Noordwijk, The Netherlands), as usually at that time we travelled to or from Amsterdam by plane there was no alternative the train would take too long. I lived in Petit Orme and had left my car at the parking of ESA's Headquarters



In front of the entrance



The bomb was placed just beneath my office

in Paris. That evening I arrived at ESA very late and before picking up my car I went up to my office to see if there were no messages left. Internet didn't exist in 1984 messages if any were in writing and my secretary used to put urgent or important messages on my desk. There were none I went down left to garage and drove home soon thereafter.

The next morning I heard on TV that a bomb attack against the European Space Agency was made during the night. The reported said that this bomb attack marked a turning point for the group "Action Directe". It was the first time that Action Directe - Combatant Unit Ciro Rizzato committed a so-called "blind" attack. Five kilos of explosive deposited in the entrance hall European Space Agency exploded; six people were injured.

I left home as usual to go to work. To my great surprise it wasn't in the entrance where the bomb attack took place but in a secondary small



My Office

entrance located just below my office. I was allowed to go up and take some personal belongings. I had a shock when I realized that I was there perhaps only minutes before the bomb exploded. My desk chair on which I had been seated that night when looking to the messages had been hitting the ceiling before fallen back.

Nowadays I would not have been allowed to go to my office but things were different then!

For me life went on without any signs of psychological trauma associated to the bomb attack. Many decades later, however, when other bomb attacks took place in Paris I had sometimes nightmares in which a bomb attack similar as the one in 1984 or a suicide bombing took place from which I escaped by miracle. It might be according to some to whom I spoke about these dreams that they are even after all these years triggered by the event in 1984.

The nightmare with Emilia was in a way part of that.

I went to bed again but couldn't sleep I said to myself that I should try to think about other more pleasant things I therefore took the "The Housekeeper and the Professor" and went on reading it. The professor talked a lot about prime numbers and Fermat's theorem though not a very sexy subject in mathematics except for mathematicians it is an intriguing story that keeps you reading on. Then on page 120 appears out of nothing Euler's formula $e^{i\pi} + 1 = 0$ written by the professor on a slip of paper.

Although maybe a little bit long I feel that it is important that I quote extensively part of Ogawa's book.

The professor had a very emotional discussion with the housekeeper (who he had fired) in the presence of her son (Root) and suddenly:

"He took a scrap of paper from his pocket and jotted something down. Setting it on the table, he walked out of the room. His manner had been utterly resolute, as if he'd decided from the beginning that this was the only course of action. There had been no anger or hesitation, he was calmly determined.

We stared at the note. No one moved. On the paper he had written a single line, one simple formula:

$$e^{i\pi} + 1 = 0$$

No one spoke."

When I saw Euler's formula my concerns for tomorrow slowly drifted away.

The housekeeper was impressed by the formula and wished to know more about it. Later on she went to the library mathematical section.

“I took the Professor's note from my wallet. $e^{i\pi} + 1 = 0$

His handwriting was unmistakable: the rounded forms, the wavering lines. There was nothing crude or hurried about it; you could sense the care he had taken with the signs and the neatly closed circle of the zero. Written in tiny symbols, the formula appeared almost modest, sitting alone in the middle of the page.

As I studied it more closely, the Professor's formula struck me as rather strange. ... There were only two numbers: 1 and 0 and one operation : addition.”

She took a book from the shelves and opened it.

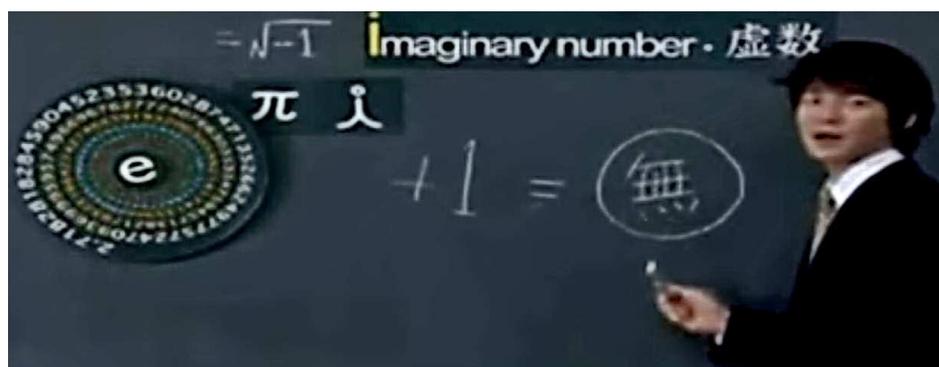
“And it was here that I found a mention of the Professor's formula. Just as I was aimlessly flipping through pages, a single line flashed in front of me. I held the note up to the page and carefully compared the two. There was no mistake: the equation was Euler's formula.

So now I knew what it was called, but there remained the much more difficult task of trying to understand what it meant. I stood between the bookshelves and I read the same pages several times.

When I was confused or flustered, I did as the Professor had suggested and read the lines out loud. Fortunately, I was still the only person in the mathematics section, so no one could complain.

I knew what was meant by π . It was a mathematical constant—the ratio of a circle's circumference to its diameter. The Professor had also taught me the meaning of i . It stood for the imaginary number that results from taking the square root of -1 . The problem was e . I gathered that, like π , it was a nonrepeating irrational number and

one of the most important constants in mathematics.[...]



in the middle of the circle (zero) 無 nothingness!

“I looked at the Professor's note again. A number that cycled on forever and another vague figure that never revealed its true

nature now traced a short and elegant trajectory to a single point. Though there was no circle in evidence, π had descended from somewhere to join hands with e . There

they rested, slumped against each other, and it only remained for a human being to add 1, and the world suddenly changed. Everything resolved into nothing¹, zero.

Euler's formula shone like a shooting star in the night sky, or like a line of poetry carved on the wall of a dark cave. I slipped the Professor's note into my wallet, strangely moved by the beauty of those few symbols. As I headed down the library stairs, I turned back to look. The mathematics stacks were as silent and empty as ever—apparently no one suspected the riches hidden there.”

[...]

Later she says:

“I still have the Professor's note, though the photograph of Root has long since faded. Euler's formula comforts me—it is a memento that I still treasure. I've often asked myself why the Professor wrote this particular formula at that moment. Simply by writing out this one equation and placing it between us, he put an end to the argument between myself and the professor. And as a result, I returned to work as his housekeeper and the Professor renewed his friendship with Root.”

After having read these pages on Euler's formula I was appeased and fell asleep with a sense of security.

The alarm clock woke me up which is exceptional normally I always wake up a few minutes before the alarm. I left home at 6h30 for the appointment, some minutes later I saw a young lady walking in my direction I had a shock she was as alike as two peas in a pod with the Girl in my nightmare. No luggage whatsoever, a large coat and an enigmatic dark-eyed gaze emphasising her face full of character. I was at the same time captivated and somewhat afraid. She didn't say a word and opened the rear door of the car but I immediately reacted and said that I would prefer that she sits in front of the car next to me. I guess in the back of my mind I could keep an eye on her.

I wondered who she was and why she hadn't any luggage and why this sudden decision late in the evening to travel with BlaBlaCar to Paris!

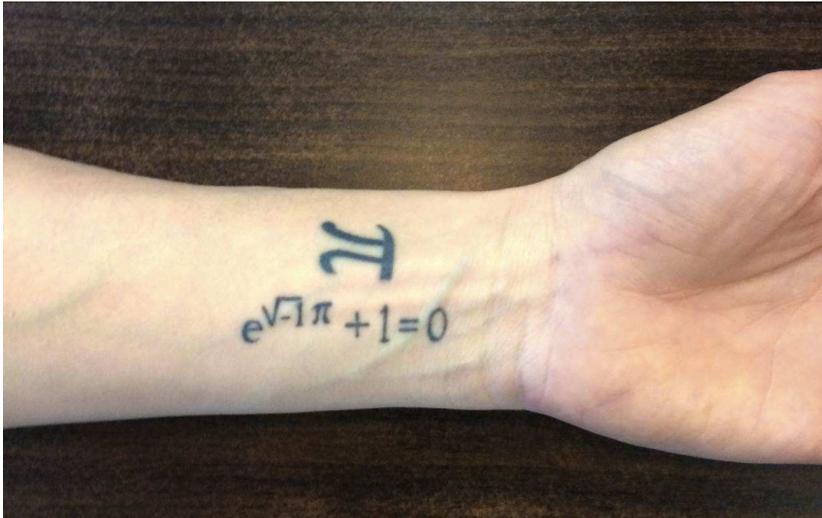
When driving with a right-hand-drive car in a left-hand-drive country one is constantly obliged to look to the right exterior rear-view mirror before pulling out to pass the car in front of you. This means you constantly look in the direction of the passenger sitting next to you. Normally I only watch the traffic but this time I couldn't help but watched Emilia at the same time. I think she noted it but didn't react at all.

We reached the Tunnel Terminal after a little bit more than one hour, I said that I would have an espresso and asked her to come with me. She nodded but once in the terminal she disappeared. When it was time to board she reappeared we went back to the car and I drove the car inside the train. I asked her if everything was ok and she said yes! This was the first word spoken by her since we met this morning.

¹ In the movie based on the book Root is a professor in mathematics and writes down Euler's formula on the black board. When he writes zero it looks more like a circle and during his explanation of the formula to students he writes in the middle of the circle 無 (mu in Japanese, Wú in Chinese) meaning nothingness which goes beyond the meaning of zero!

Strangely enough I fell asleep during the journey under the Channel and woke up just before arriving in Calais.

Once on the highway I decided to speak to her. I told her that I often have young people travelling with me and that we always end up having interesting conversations. I said that one of my favourite subjects is mathematic. The conversation starts with the question “what is your most favourite equation or formula?” I didn’t expect any answer from her but she looked me right in the eyes when she slowly rolled up her sleeves and there appeared to my great surprise Euler’s formula tattooed on her arm! I was stunned, the nightmare, Euler’s formula in Ogawa’s book all this went through my mind. Finally I came back to my senses and said that this is also my favourite formula.



I was a little bit surprised that she has written “i” in the formula as the square root of -1; it looked nice and maybe more intriguing for non-mathematicians. Emilia confirmed that that was the reason why she had chosen to write it that way.

She told me that she studied digital image processing and graduated from one of the best universities in Paris. I

told her that my son is doing his masters at the same university, though in a different field of science!

We discussed about mathematics and physics and at a given point in time a saying of Leopold Kronecker came to my mind “God made the integers, all else is the work of man.” (Die ganzen Zahlen hat der liebe Gott gemacht, alles andere ist Menschenwerk!) but before I could say it Emilia asked me a question on what in my opinion is behind mathematics seen from a philosophical point of view. Again, I was taken by surprise and wondered if she could read my thoughts! This was the beginning of our discussion on the existence of God or his non-existence. I told her that I do not believe in God at least not as depicted in Christianity. My God would be more the one that Miguel de Unamuno describes in his book “The Tragic Sense of Life” close to what Spinoza believed. She said in French “je ne m’interdis pas de croire que Dieu existe” which is very difficult to translate in English.

We then switched from the sense of life to the origin of life. We both believed that life is embedded from the beginning of time in the universe.

I was still wondering why she had no luggage but without asking her she answered that she learned yesterday that her best friend, living in Paris, had given birth to a baby a bit before term. She immediately wanted to go and visit her even for a one-day trip and couldn’t find a train for travelling to Paris that is why she decided to use BlaBlaCar. Going back will be by Eurostar!

She then told me that she is in fact Argentinian, her family lives now somewhere near to Mendoza. Her brother also studied in Paris but decided to go back to Argentina once he obtained his degree in International Trading (Commerce International). Her two sisters never studied abroad. Since she was a child she dreamed of living in London I do not remember why I think it was about what she read in a book. With an Argentinian passport working in London was not easy. A few years ago the Italian government allowed Italian migrant to obtain the Italian nationality. Many Argentinians from Italian origin applied for Italian citizenship including Emilia's father. That explains why she had an Italian Passport without speaking fluently Italian. Once she had this passport she looked for work in London which given her professional background was rather easy.

Discussions went on and in no time we were in Paris illustrating the relativity of time.

Back home I told the story to Nathalie and my son Aurélien and I concluded by saying that everything turned out to have a rational explanation i.e. last minute decisions to go to Paris, no luggage, Italian but not fluent in Italian etc. They said that I was overlooking something either consciously or most probably unconsciously that was the fact that I didn't want to say yes but that in the end the choice was yes. They both concluded that the fact that I accepted to take Emilia on-board was through telepathy; in an unknown way I connected with her when I pushed on the YES button! Both BlaBlaCar at a given time our encounter had become unavoidable! This irrational conclusion puzzles me it looks impossible but who knows?

Full of irrational thoughts I remember reading somewhere "My Guardian Angel is very good in mathematics" I think mine is alike and through Euler's formula she protects me!