



## Bit Quântico 01 - MAGICIANS AND MYSTICS

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[intro bass]

**Leo** - Hello everyone, I'm Leonardo Guerini, and this is not a standard episode of Q Quântico. This is a shorter episode, in a more concise format, which we called c. The goal of these mini-episodes is to bring some content that, despite not being so central to the season, complements the topics that we present in the normal episodes.

**Leo** - In episode 1, we talked about misuse of quantum theory concepts. We understand that there are two types of people who do this: there is a well-intentioned, but perhaps misinformed, person who believes that defending certain practices and certain pseudoscientific views helps to improve the world. But there is also the charlatan, a deliberately ill-intentioned person who says the wrong things on purpose. This Bit Quântico doesn't concern quantum theory directly, but it shows how difficult it can be to unmask a charlatan.

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**Gláucia** -There is a tragicomic situation that happened in the United States in the 1970s...

**Oswaldo Pessoa Jr.:** Which is a moment when you have, for example, Uri Geller saying that he has powers over matter, deceiving scientists, right?

**Gláucia** - This is Oswaldo Pessoa Jr., professor of philosophy at the University of São Paulo. Uri Geller was a guy who gave presentations in which he bent spoons with the force of his mind (there's even a famous scene from the movie The Matrix that refers to it). Supposedly, he also induced people in a remote room to make specific drawings through telepathy, and said he had other psychic powers too. He became very famous with these performances.

**Leo** - Remember that in the 70s the Cold War was at its peak, and there were rumors that the former Soviet Union was experimenting with paranormal abilities for military use. Not to be left behind, the United States government financed research by two scientists linked to Stanford University, to find out if these powers were really real. And who was the object of their study? Uri Geller.

**Oswaldo Pessoa Jr.:** There were two laser physicists, right? Who started studying Uri Geller in sixty-eight, seventy or so.

**Gláucia** - So, the scientists went with Uri Geller to the laboratory to test the powers he said he had. And after months and months of carefully controlled testing, they announced the results:

**Oswaldo Pessoa Jr.:** Saying look guys, we did the experiment and he managed to do things that are unexplainable by science.

**Gláucia** - Scientists really couldn't explain what was happening in the laboratory. Apparently Uri Geller actually had extra-sensory powers. They wrote an article that was published in Nature, which is one of the most prestigious scientific journals in natural sciences.

**Leo** - But not everyone was convinced of these powers. A large part of the scientific community remained skeptical and in reaction to this a commission was created with some important names in science, science communication and intellectuals in general to evaluate cases like Uri Geller... Even Carl Sagan, who was a great science popularizer, and Isaac Asimov, one of the greatest science fiction writers, were part of this commission at some point.

**Gláucia** - However, in this work of unmasking charlatans, a certain member of this commission had more prominence than the others.

**Oswaldo Pessoa Jr.:** The key to unraveling Uri Geller was calling a magician, right?

**Gláucia** - The magician James Randi became famous for escaping chains and straitjackets while hanging upside down. But he was also a master of illusionism. And in fact, when Randi studied those “carefully controlled” conditions like the ones used in the experiments that theoretically proved Uri Geller's powers, he saw that the thing wasn't that well controlled. Like a good magician, Randi identified several loopholes in these conditions that allowed various tricks to be performed.

**Leo** - For example, by paying attention to Uri Geller's gestures during his presentations, Randi was able to identify certain moments in which the mystic could use distractions to exchange one object for another, such as exchanging a spoon for another that he had brought and prepared beforehand so that it bends when heated.

**Gláucia** - Thus, Randi was able to reproduce most of the fantastic presentations of Uri Geller.

**Oswaldo Pessoa Jr.:** A scientist cannot unravel the secret of a guru, it takes a magician who recognizes another magician in the guru, to pick up the tricks, right?

**Gláucia** - But as we said, unmasking a charlatan is a complicated business. James Randi could replicate Uri Geller's tricks. But there was never a definitive flagrant, a moment when someone looked up Uri Geller's sleeves and explicitly showed his

tricks. Since Uri Geller had no interest in allowing this type of confrontation, right? A magician could do the same things that the mystic Uri Geller did, but technically even this doesn't guarantee 100% that Uri Geller was really a charlatan.

**Leo** - This only reduces the case to two possibilities: either [plim] he had no mystical powers at all, which is probably the conclusion of most people, including ours; or [plim] they were not so useful powers, which a professional illusionist can imitate. [congas] Anyway, this story illustrates well that unmasking professional fraudsters is a complicated task and sometimes even scientists have difficulty getting the job done.

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**Gláucia** - We end this first Bit Quântico here. If you want to know more about the case of the mystic Uri Geller and the magician James Randi, there is a very cool 2014 film about Randi's life, called 'An Honest Liar'. We leave this indication along with the transcription of this Bit Quântico and the translation into English on our website [www.ufsm.br/oquantico](http://www.ufsm.br/oquantico). We'll be back in the next episode. See you then!