

# Jeannie's Time Constant

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Jeannie Samma lived next door to me. She was a bright girl of 11 who always asked a lot of questions. She used to ask me questions when I saw her playing outside. I'm patient with kids, so I always tried to answer her increasingly difficult questions, and as she got older, the questions got tougher. One day, her parents invited me in to their house to look at "some stuff she wrote on the wall." I have an electronics engineering degree, but the equation that Jeannie wrote was far beyond my ability to understand. Her dad, Jason, was a math teacher at the local college and he said "I exposed her to the calculus when she was just a wee thing. Now she's positively out of control. Look."

I studied the simultaneous partial differential equations that Jeannie wrote on her bedroom wall. She was standing there, kind of rocking back and forth to some unseen music source. Jason and I stood and stared, and then we finally sat down on her bed, to try to absorb the math. Finally, he got up and started stepping through each part of the solution.

"Each of these partials is an asynchronous solution," he said.

"Yeah, but when you follow the thread, Jeannie proved that  $9 = 3$ ," I replied.

We both looked at her and asked her to turn down her iPod music.

"Jeannie, can you explain these equations," her dad asked, "We're having trouble understanding this partial product."

She looked up at her dad with big brown eyes and read the whole partial differential to him, without glancing at the wall. "That's good news," she said. A moment later she said "...and bad."

"Jason, we need to elevate this to a higher authority. My college buddy, doctor Subrahmin got a Fields Medal for his work on abstract sets of infinite numbers."

"Isn't that some Canadian organization that gives out medals to egg-head mathematicians?"

"It's way more than that. The Fields Medal is like a Nobel Prize for mathematicians. It is only given to the best of the best. Doctor Subrahmin got his medal in 2014. I'll get in touch with him."

Jeannie stood and rocked to the music in her mind. "She doesn't have an iPod, Jason," I observed.

A week later, doctor Subrahmin arrived. Jason called me and invited me to his house. I could tell that Jeannie was glad to see me. I realized that she lived in a different world than the rest of us. Sometimes I wondered if she was autistic.

Jason looked at Jeannie and said "Here is my friend, doctor Subrahmin. He is a professor of mathematics at Massachusetts Institute of Technology. He has a nice robotics lab that you can visit someday."

He shook my hand and said "call me Sooby." He was wearing the kind of headgear that I saw on many Indians when I visited their country a few years ago.

"Let's look at this," he said. "Jeannie, can you explain this partial derivative?" He was already half-way down the wall.

She looked up and actually looked at him like he was a dunce!

"It's the good news/bad news part," she replied.

"Whatever do you mean?"

"I'm changing the 4th dimension constant. When you solve these 2 simultaneous equations, it proves that  $3 = 9$ ."

"Jeannie, I don't understand what you mean by good news/bad news. Math is just math. I see your equations and I agree with your results, but I don't understand this step. Do you understand: in math, you have to have a proof of each step."

"Oh, I understand – it's you who don't understand." She had tears in her eyes. "None of you understand at all."

But the universe understood. And suddenly, clocks changed. Computers, which are entirely based on clocks, ceased function. The lights dimmed and went out.

"I don't have a Ph.D. I'm just right," Jeannie was crying.

Suddenly, the universe was entirely convinced of that. It had to change. It was totally logical and based on constants and laws, and now a fundamental constant of time needed changing.

Life, which is based on internal clocks in cells, changed – living things stopped aging. The universe gasped! Changes to the 4th dimension constant would need to ripple through the many, many equations that it had always assumed were correct.

Jeannie pointed at the wall "The good news, doctor Subrahmin, is that we'll live forever – since forever has been redefined."

"Jeannie," I quietly asked "then what's the bad news?"

Earth started cracking. The sun was turning a shade of purple?

Sounding more like a professor than a professor, she replied "The fundamental constants of the universe – leptons, strong, electromagnetic, quarks, gravitational and weak forces all work together with time to cause constant change – spontaneously. Now they all have to change."

Doctor Subrahmin muttered "To accommodate Jeannie's Time Constant."

We were all staring at the young super-genius when suddenly, a new universe started with a **BANG!**