

No Nothing, No Everything

By David Gutnick

First there was silence. Then there was a BIG BANG. Like the Big Bang that scientists say was at the origin of the universe. OK, I am exaggerating. It was more like a bedroom-door-being-slammed Big Bang by an 11-year-old with tears running down her face.

BANG! MY bedroom door. My name is Jaswant Bhinder. And those were my tears. Let me explain what was happening, so you can understand why I was so upset.

It happened a few weeks into the school year. My family and I had moved into this neighbourhood in the summer because my mom — who I call Mata — got a new job at the university.

She works in a computer lab, which is pretty cool as far as jobs go. Mata says her work is all about fiddling with 1s and 0s because that's how computers work. Even your cell phone, which is just a tiny computer.

If electricity flows in an area on a computer chip, that area is turned on. That is called 1. When there is no electricity flowing, the area is off. That is called 0. In every computer chip, there are millions of tiny switches called transistors which are going on and off, on and off, on and off ... and on, off, off, off, on, off, off ...

... which looks like this: 1010101000100 ... and so on. Imagine pages and pages filled with those two numbers to command a computer to do everything a computer does.

It's called a binary code. Binary means it involves just two things: 1 and 0.

I know that seems weird. It means when you're listening to Anti-Hero on your phone, Taylor Swift's voice is really just 1s and 0s flicking on and off, like, super, super quickly. How quickly? Like billions of 1s and 0s going on and off in the blink of your eye. They're flickering invisibly inside your phone.

They are also carried by electromagnetic waves moving through the air from satellites in space and coming to you from cell towers all over the place.

It's weird to think about it, but that dance of 1s and 0s going on and off are now at the centre of our everyday lives.

Anyway, back to why I slammed the door and was lying on my bed crying. I was thinking about what had happened at school. In gym class we were playing volleyball, and I was serving. I kept hitting the ball too hard so it flew out of bounds or went straight into the net. When I turned around to pick up the ball, somebody on the other team yelled in French, “Elle ne vaut rien; elle vaut un grand zéro.”

Me. A zero. Z.E.R.O! No wonder I was bawling my eyes out.

Someone started stroking my hair. I hadn’t heard Mata come into the room. I told her what had happened, that a kid had called me a big zero. That I was worth nothing. Z period. E period. R period. O period.

Mata shook her head and smiled. “You should be proud that someone called you a zero,” she said.

That made me cry even harder. Don’t get me wrong: I love Mata. Sure, sometimes she’s too strict — I have to make my bed before breakfast, and she won’t let me get any tattoos as long as I live at home. But sometimes she is just whacky. Like now.

“How come you’re taking their side?” I asked her. “Don’t you realize that zeros are worth nothing?”

“But there you are wrong,” said Mata. She was using her kind, teacher voice so I knew I had better keep listening. “Without zero, so much of the world we have made over centuries and centuries wouldn’t even be possible.” she said. “You wouldn’t have a cell phone or your laptop. There would be no bicycles or cars or airplanes.” “No bridges. No skyscrapers. No pizzas.”

Seriously, I thought Mata was making no sense, but I kept listening. “You know the Barbie movie that you saw last week?”

I loved that movie, especially the disco party scene where everyone lives super perfect lives in Barbieland until Barbie talks about death. It made me think about how fragile we are.

“Well without zero, that movie you love wouldn’t exist,” Mata said. “No Barbie dolls, no cameras, no lights or editing software.” “No money — and no way for you to pay for your movie ticket like you did with my credit card.”

It’s true. Mata let me take her credit card to pay for my ticket.

“We need math to measure and make everything,” said Mata. “You need math to make steel or glass or plastic or bike wheels that will stay round or electricity to heat the oven to bake your pizza.”

Thousands of years ago, people all over the world — in China and Greece and Mexico and India and other places — were figuring out how to count, Mata told me. They were learning how to add and subtract and multiply and divide. The more complicated the math got, the more they realized that they needed to use a blank space to get the right answers. When they were writing numbers down they started making marks to show where the blank spaces were. The Babylonians - the people who lived where Iraq and Syria are today — drew little angles. The Mayans — who lived where Mexico now is — used the oblong shape of a turtle shell to show the blank space. The Romans — who came, guess where, from Rome — did not have a symbol. They used the word *nulla*. That means none.

“All that might seem like ancient history,” Mata explained, “but it’s important. People were starting to understand that the blank space — that nothing — was just as important as the numbers.” “That meant that the blank space was a number, too.” “A real one. Just like all the others.”

I was starting to feel better. The girl who called me a Big Zero didn’t know what she was talking about. It’s true that people think calling someone a zero is like telling them they are worthless. The girl on the other volleyball team was bullying me, telling me that I was nothing: un nul. But in reality, nothing is something.

“Jaswant, there’s a part of the story of zero that’s going to surprise you even more,” said Mata. “People who study the history of math say that it was in the fourth century, in India, the country where I was born, that zero was first written down as a number.”

“Like some old guy wrote a big circle on a piece of paper where he was working on a math problem?” I joked.

“Nope,” said Mata. “It was just a big dot — like a period — written on a scroll made of tree bark.” “But over time it evolved into the circle that we know today. That circle is right at the heart of all mathematics.”

Mata went to the kitchen and started making supper. I could hear her chopping vegetables. I could hear the beeping of the rice cooker: more 1s and 0s doing their job.

My phone was buzzing. I had a tonne of SMS messages from my volleyball teammates who wanted to know how I was doing. I texted a couple of smiling emojis. Then I got a better idea. And I group-texted this:

“Proud to be a big Z.E.R.O. Proud to be called a nul. No nothing, no everything.” My phone went crazy. Everyone started sending me question mark ????? and writing LOL. “Answer tomorrow.” I texted back. “0 x 0 = You have no idea how important this girl feels.”