

The day I lived a 10000 years

by Lorenzo Maccone

What a dreary morning... As I did every day, I took my bike and pedaled to the physics department.

But once there, I found the surprise of my lifetime: my workstation greeted me with a blinking blue light. Can it be possible?! I had programmed it years previously to do what I thought would be an impossible calculation, and now it was signaling me that it had succeeded, after all this time?! I fired up the terminal and immediately connected to it: indeed it was true, it had managed to find the arcane missing step in the complex procedure based on quantum complementarity I had discovered years ago. I was now able to perform quantum leaps between parallel universes! Indeed it is well accepted (at least, rather well accepted) that the universe is in a quantum superposition of many branches that proceed in parallel. The usual terminology (due to MIT Prof. Max Tegmark) is “level III” parallel universe: these different universes do not live in a different position or in a different time, they are all here and now. They just live in a different part of the Hilbert space, which is the mathematical construct that describes “where” they are. This means that it's generally believed to be impossible to visit them: while we know how to travel to different locations and we even know how to travel to different times, we don't have any idea of how to travel in Hilbert space. That is, we didn't know until that blue light started blinking on my workstation. Now we know (at least *I* know). I excitedly ran through all the checks I had prepared years ago, and the solution checked out. Could it be so easy? It's not the first time in science when we find a solution to a problem under our very noses: sometimes it just boils down to asking the right question!

I immediately started a frenzied search for the components of the machine that would allow me to quantum-leap, and in just a month I had the first q-leap prototype towering in my living room: an ugly contraption made of green circuit boards held together by duct tape connected to an array of directional antennas pointing at a chair where the traveler would sit. A quite

simple object, considering. Early one morning, my finger already on the switch that would initiate the procedure, I hesitated: the possibilities were endless. Indeed a new “universe” forms basically almost all the time and everywhere. So, how many parallel universes are out there? Well they're infinite for sure, the only unknown thing is what order of infinity: a discrete infinite or a continuous infinite, or perhaps an even higher order of infinite?

Whatever: at my fingertip, poised on the switch, there literally lay an infinite number of possibilities. I had programmed my contraption so that I would visit a certain number of universes, say 10000, why not? Since these universes are in the same position and the same time as ours, I could instantly travel to any of them, and I could also play a weird game with time: for every leap, I'd go back in time by one year, and stay there one full year. Of course, I'd have to choose only the universes that would make some remote sense to me, but that would be easy: I just needed to choose the universes that had started to be “created” after my birth, namely the ones who had started branching from a very specific one in which I was born. Actually the most difficult part in the whole plan was to find a way to come back to my current universe at the end of my trip, but I was confident (I hoped) that my contraption would manage it.

I flipped the switch.

A fraction of a second later my trip was over. Have you ever heard the expression “been there, done that”? Well I've been *there*, done *that*!! I had lived 10000 years and I had been 10000 different versions of me. Actually 8512, clearly in the other universes I was dead, which tells me that I'd be dead at 38 with a 14.9% probability. It probably tells me something bad about my life expectancy, but I'd rather not think of it. Anyhow, I had been everywhere (even on Mars at one time and on the moon and to the south pole a couple of other times), and I had done

everything imaginable (and many things I'd never remotely imagined I'd be able to do). I was a scuba diver, a taxi driver, a ship captain, a slave, an astronaut, a special force soldier, a priest, a drug addict (many times over), a millionaire, you name it, embarrassingly even a politician once. In that single second of my life I had the adventures of a lifetime (actually 8512 lifetimes, to be precise). Oh, the endless possibilities! Ulysses? What an amateur! The trip *I* took that day boggles the mind: certainly the greatest adventure any human ever had.

And yet, while I was living all those lives, in the back of my mind I knew something was amiss. It was me all right, it was truly my life (lives) I was living every time, and yet it wasn't really me... It was my body, even my mind, but it wasn't my "real" life! I don't know how to explain it: it's difficult to talk about "reality" when quantum mechanics kicks in. Anyhow, gee am I glad to be back! Without having to go anywhere, life in *my* universe is so full of possibilities.

What a beautiful morning... As I did every day, I took my bike and pedaled to the physics department.

Lorenzo Maccone is a theoretical physicist at the University of Pavia. The existence of parallel universes is almost an unavoidable prediction of quantum mechanics IF it can be applied to the whole universe (which is a huge "if", since we have tested quantum mechanics only on microscopic systems). However, speaking of parallel universes (in the plural) is a huge misnomer: it's a single universe, in quantum superposition. Multiple universes make for an easier (albeit imprecise) visualization of the many branches of the single universe in quantum superposition.