Xavier Gerad Viennot - [Xavier, Viennot, 61, 1285, 1973, 2018, 3, 2, 4]

Out of all the participants I was assigned, Xavier Gerad Viennot definitely has the coolest name. He completed his studies at Ecole Normale Superieure Ulm in 1969. Afterwards he obtained his PhD from University of Pais in 1971 under Marcel-Paul Schuzenberger. Ever since he completed his studies at Ecole Normale, he has been working as a Researcher at CNRS which is the National Center for Scientific Research in France. Currently his position at CNRS is Emeritus Research Director, member of the combinatorial group at Laboratoire Bordelais de Recherche en Informatique, Universite de Bordeaux.

Xavier is a very talented man, and has many awards and achievements to show for it. He's held visiting positions at more than 20 different universities and research centers in Europe, North and South America, India, China, and Australia. Fair to say he has been around the world. Not only that but he has received many awards, including A. Chatelet medal, for his work in algebra, in 1974 and a Silver Medal at CNRS, for his work in combinatorics and control theory, in 1992. If we were able to summarize his main research interests, it would be enumerative algebraic and bijective combinatorics. The interest in combinatorics is what relates him to the great Srinivasa Ramanujan.

Enough about his career, what was it that made Xavier pursue the field of mathematics? Xavier was very interested and good at mathematics and loved physics in school. Everything else he didn't care about, it was those two things that interested him the most. His father was an engineer and quite strict as well. Instead of letting Xavier decide on his own what he wanted to do, he pushed him to be just like him and constantly prepared him for the exams of the so-called "great-schools" as they were known in France. Ecole Polytechnique is one of these so-called "great-schools".

Although Xavier is a master in combinatorics, he doesn't believe it is for everyone. Many wonder if there are "core" areas of mathematics that are more important than others. Xavier believes that the importance of one area depends on the time period and varies based on time, and is subject to personal taste. The main ingredient needed for a domain is for it to be active, with plenty of facts, equations, and consist of problems that are all connected with each other. A second quality for a good domain is for it to have many interactions with other domains and fields.

Xavier believes math to be a form of art, and beauty fundamental. The reason many math discoveries are called discoveries and not inventions is because of a simple paradox. In Xavier's

own words, "The paradox is that at first, one can believe that he or she is creating a piece of this art, a nice bijection, a nice space, but after some more exploration, one will realize that all this was already there, no piece of art has been created, we are just walking in a museum, but not a closed museum with past dirty collections, but a living world, like exploring mountains."

Xavier is quite different but also similar to another person I researched, Kevin McCurley. Kevin McCurley believed in applied math. He believed math should be useful in the real world. A lot of people feel strongly between pure and applied math, but Xavier believes the path from pure to applied math is a network of fruitful connections in all directions. Xavier himself connected the pure side of combinatorics to other topics like the shape of rivers in Hydrogeology, mRNA, radiology of lungs, and much more. One year he likes to spend his life applying pure concepts related to trees and Catalan numbers and the next year he will spend his life on computer graphics.

He also learns a lot from nature. Math is all around us, and it controls everything. We can see math in nature. Xavier started growing plants in his vegetable garden and noticed something very strange. He says gardening is a very rewarding experience, and it's good to have other hobbies as it keeps your mind fresh, and also may lead you to find answers in the strangest of places. Xavier noticed two walnut trees that have been growing for 20 years. The two trees were extremely close to each other but gave two different stems but naturally joined together at the basis of forming a unique trunk. He noticed how the two trees have the same height, and always seem to "avoid" each other even though none of them have eyes. He observed a branch at the top starting by going straight towards the other tree, but at the last moment turned away like he knew he was going to hit the other tree. As Xavier said, observings things like this in nature can give us insight into questions like do trees communicate with each other and how do they do it? There's much scientific research related to this currently going on.

Other than gardening, Xavier also has many other interests related to nature. He also to be in the wild and remote places. He used to do a lot of climbing, mountaineering, trekking, and sometimes he goes on expeditions on many mountains around the world. One interesting fact is that for his postdoc at UCSD in San Diego, he went by crossing the Atlantic Ocean with a sailing boat. He also loves to ride bicycles, listen to classical music, and spend time under the stars doing photography, especially photography in nature. Of course, one paper cannot summarize anyone's life, and certainly not a man like Xavier. But at least now we know one of his secrets to his success. To be great at math, you must be one with nature.