

SAVING PRIVATE GOLDBACH

Tim Horvat, Jasna Kos

Gimnazija Bežigrad, Ljubljana, Slovenia

tim.horvat@dijaki.gimb.org, jasna.kos@gimb.org

Abstract

A group of six students from Gimnazija Bežigrad, Ljubljana, Slovenia will present the performance “Saving Private Goldbach”. With this drama they will participate in the MATHeatre competition. This is an activity by the European Commission funded project “Learning Mathematics through new Communication Factors”. Tim Horvat, the 16-year-old author of the performance, presents the ethical dilemma about a computer being able to prove mathematical theorems and thus being able to replace the humans.

The performance is a result of extended work on mathematical proofs. Students learn about the sense of the proof in the first year of the school, when studying about the number theory. The first step is to understand that it is not enough to change variables with numbers. To prove something means to use axioms and deductive reasoning to explain why a statement is true without having to check every number. “Mathematicians aren’t satisfied because they know there are no solutions up to four million or four billion, they really want to know that there are no solutions up to infinity,” said Andrew Wiles. In the performance the famous Fermat’s last theorem and Goldbach’s conjecture are exposed. The performance was written by using information from the novel *Uncle Petros and Goldbach’s Conjecture* by Apostolos Doxiadis and the movie *The Fermat’s Last Theorem* by Simon Singh .

The performance goes as follows. In Act 1 Robert Stark informs Fred Euler about his achievement. He successfully launched “the most advanced computer in the human history which will push borders of maths to the unbelievable dimensions”. Two hours after setting up five Peano axioms the computer named Hal already proved the Fermat’s last theorem. There is a possibility that the constructor’s secret to wish to prove the Goldbach’s conjecture will become reality. In Act 2 there is a meeting of some of the world’s most famous mathematicians. Euler tells the colleagues about Stark’s invention. The Indian mathematician Gupta is very enthusiastic because the so called quantum computer could find out “whether there are any odd perfect numbers and search for new perfect numbers”. The other mathematicians are anxious; they cannot cope with the idea of a super computer. After finding out that the computer has started to prove the Goldbach’s conjecture, they are completely shocked. They decide that “Goldbach must be protected”. In that moment Stark, who was not invited, appears at the meeting. He does not want to accept the argument of the mathematicians that Hal must be turned off and Euler shoots him. In Act 3 we see the final confrontation between Euler and Hal. Euler wants to convince Hal to stop proving the Goldbach’s conjecture. Hal disapproves and Euler turns it off. With the big explosion the computer finishes its “life”.